

# **Traffic Safety Problem Identification**

**FY 2006**

July 15, 2005

**State Highway Traffic Safety Office  
Montana Department of Transportation  
2701 Prospect Avenue  
Helena, Montana 59620-1001  
<http://www.mdt.mt.gov>**

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## A. INTRODUCTION

This document is used to identify and analyze trends and to evaluate problem areas related to highway traffic safety in Montana. Much of the information contained within this publication originates from traffic crashes occurring upon public roadways. The trends and contributing factors of the resultant injuries and fatalities along with the demographics for the drivers and vehicles involved are presented. Rates are calculated using vehicle miles, licensed drivers or population when possible. The analysis is intended to provide information to highway traffic safety specialists that will assist in the design of counter-measures for specific problem areas.

Data is first presented on crash numbers, general exposure and demographics. Included in this are population statistics, driver license information, vehicle registrations, vehicle miles traveled and breakdowns of driver demographics within crashes. Information is presented in the latter half of this document on potential problem areas and items of possible interest such as impaired driving; occupant protection; speed; hazardous actions and traffic records. Many tables contain ten years of data. In these tables, current year data are compared to the previous year and the average of the previous five years. The last two lines of these tables usually contain the percentage change for these comparisons.

The Montana crash record system includes all reported motor vehicle crashes, which occur upon public roadways that are submitted to the Montana Highway Patrol by investigating officers. Crashes must involve at least one motor vehicle upon these public roadways. A bicyclist who crashes and injures himself would not be captured in the database unless a motor vehicle was also involved. A crash report is to be completed for any crash resulting in death, injury, or property damage amounting to \$1000 or more. These incidents are termed reportable crashes.

Many crashes such as single vehicle run off the road, wild animal crashes and very minor crashes are not reported to law enforcement, even when there is more than \$1000 of damage. Most law enforcement agencies submit crash reports. The exception is that few crash reports are received from reservation law enforcement. The database does not contain every crash that meets the criteria, but should be very nearly complete for crashes involving serious injuries. The minimum reporting level changed from \$400 to \$1000 on January 1, 2000. This may affect some comparisons examining total crash numbers. In addition, a short crash reporting form was introduced in 2001, which allows jurisdictions to fill this form out when no injuries are involved. This, too, may have some negative effects upon the data.

The data elements within the crash record system include information on vehicles, roadway, drivers, passengers, pedestrians, bicyclists, and crash details. Some tables summarize crash counts, while others summarize the number of drivers, number of vehicles, number of occupants or number of injuries and these differences can be subtle and confusing. In addition sections of tables may concern all crashes while other sections contain data for fatal crashes or other subsets. Special care must be given by the reader to understand what exactly is being summarized within each table.



## B. TRAFFIC CRASH AND EXPOSURE STATISTICS

Montana, along with most of the Rocky Mountain States, has unique problems in traffic safety. Unfortunately, Montana is often at the extreme even among these states. The Rocky Mountain States tend to be high on roadway departure fatalities. This may be the result of a higher percentage of high-speed traffic and longer trips on mostly rural roads. Very few of Montana's vehicle miles traveled (about 15%) occur in the urban environment. A high percentage of miles traveled are at high speeds compared to more urban states, thus increasing the likelihood of fatal crashes. Road departure crashes account for 18% of the crashes, but 55% of the fatal crashes. Single vehicle fatal crashes account for 58% of the fatal crashes in the United States. In Montana over 66% are single vehicle fatal crashes. This places Montana third in the nation behind South Dakota and Wyoming. On the Montana Indian Reservations over 73% of the fatal crashes are single vehicle crashes. Single Vehicle nighttime fatalities account for 33% of the fatal crashes, which again places Montana third in the nation behind South Dakota and Massachusetts.

American Indian fatalities as a percentage of all fatalities tend to be high for the Rocky Mountain States. These Indian fatalities have higher rates of alcohol involvement. Each year in Montana, 14 to 20 percent of traffic deaths are Indian fatalities. Over 30% of the alcohol related fatalities in Montana were American Indians during 2004.

The makeup of the vehicle population is also different in the Rocky Mountain States. In Montana, pickups make up 40.1% of the vehicle population compared to 18.3% nationally. The percentage of pickups, SUV's and vans in fatal crashes is very high. Montana has the highest percentage in the country at 46% resulting from fatalities in these types of vehicles, while the US average is 25%. Nationally, the rate of fatalities in pickups and SUV's per 100,000 registered vehicles is nearly 50% higher than in passenger cars for the U.S. Less than 17% of fatalities in pickups on Montana roadways were wearing a seat belt compared to over 30% for passenger cars, SUV's and vans. Occupants of pickups wore seat belts at a rate 20% lower than occupants of passenger cars during a Montana seat belt survey conducted during April 2005.

All of these factors push fatality rates upward in Montana and the surrounding states. These factors, along with longer rural trips, are much of the reason that states in the Rocky Mountain region show high fatality rates. Meeting NHTSA's national goals will be more difficult for Montana than for states in other parts of the country. Montana seems to be the worst of even the Rocky Mountain States in most of these factors, making this a truly unique and difficult state for traffic safety.

On the positive side is the response of Montanan's to our secondary seat belt law. Montana has very high usage for a secondary law state. Unfortunately, the drivers who take the most risks are still not belting up. There is a minority hardcore group in Montana that tends to speed, drink, drive aggressively, while not buckling their belts. This is a killing combination.

Misperceptions often lead to increased crashes and fatalities. Montanans perceive that pickups and SUV's are safer vehicles, because of their size and/or four-wheel drive. They don't understand that the propensity to rollover, more than counteract these factors. Many Montanans perceive that most people drink and drive, so it is ok if they do too. By correcting these misperceptions, it has been shown that drinking and driving is reduced. There are many perceptions related to traffic safety that are far from the reality. The more that these misperceptions can be corrected, the greater is the reduction of dangerous behavior, and this leads to improved traffic safety.

A positive in Montana during 2004 was that there were 33 fewer fatalities than during 2003. This could be the beginning of a downward trend or possibly just an unusual year. Injury crashes decreased, and were the second lowest during the last ten years. Ten years of reportable crash and injury data appear in Table 1. Traffic crash and injury counts generally increased during the first seven years of the 1990's, then leveled. Crashes during 2004 were lower than 2003. Billings Police did not investigate many of their non-injury crashes from 1998 to 2000, which caused an undercount of 1000-2000 crashes during those years.

<p>Table 1</p> <p><b>Crashes by Severity</b></p>						
Year	All Crashes	Fatal Crashes	Injury Crashes	Property Damage Crashes	Fatalities	Injuries
1995	20,508	186	6,807	13,515	216	10,255
1996	24,882	177	6,980	17,665	198	10,557
1997	22,619	223	6,951	15,445	265	10,688
1998	22,068	208	6,728	15,132	237	10,075
1999	21,078	194	6,769	14,113	220	10,459
2000	22,254	203	7,053	15,000	237	10,798
2001	21,846	201	6,220	15,420	230	8,982
2002	23,527	232	6,479	16,816	269	10,086
2003	23,160	239	6,229	16,681	262	9,632
2004	21,783	209	6,000	15,570	229	9,263
Chg 1 Yr	-5.9%	-12.6%	-3.7%	-6.7%	-12.6%	-3.8%
Chg 5 Yr	-2.6%	-2.2%	-8.4%	-0.2%	-6.0%	-7.3%

Source: Traffic Information System (TIS) – Montana Department of Transportation

A Montana history of fatality numbers on public roadways is presented in the graph on the following page. Fatalities reached an all time high of 395 during 1972. The lowest number of fatalities since 1950 was 181, which occurred during 1989, the second year of Montana's seat belt law. The number of fatalities in 2004 was the second lowest during the last eight years.

Montana crashes by severity type are represented graphically in Figure 2 on the page following Figure 1. Property damage crashes tend to vary greatly from year to year. Much of this variation results from differences in the amount of icy road conditions, especially in the urban areas. Property damage crashes were elevated particularly in 1996, because winter driving was present significantly more than during an average Montana winter.

Injury and severe injury crash counts tend to be more accurate indicators of safety trends in Montana. These crashes can represent change without as much of the variation caused by the small number associated with fatalities. Total Crashes tend to have variation that is strongly associated with the amount of icy roads. Severe injury crashes are defined as those crashes involving a fatality or an incapacitating injury. **This value and the related number of severe injuries are probably the best indicators for trends in traffic safety in Montana.** This information will be shown later in Table 4.

Figure 1

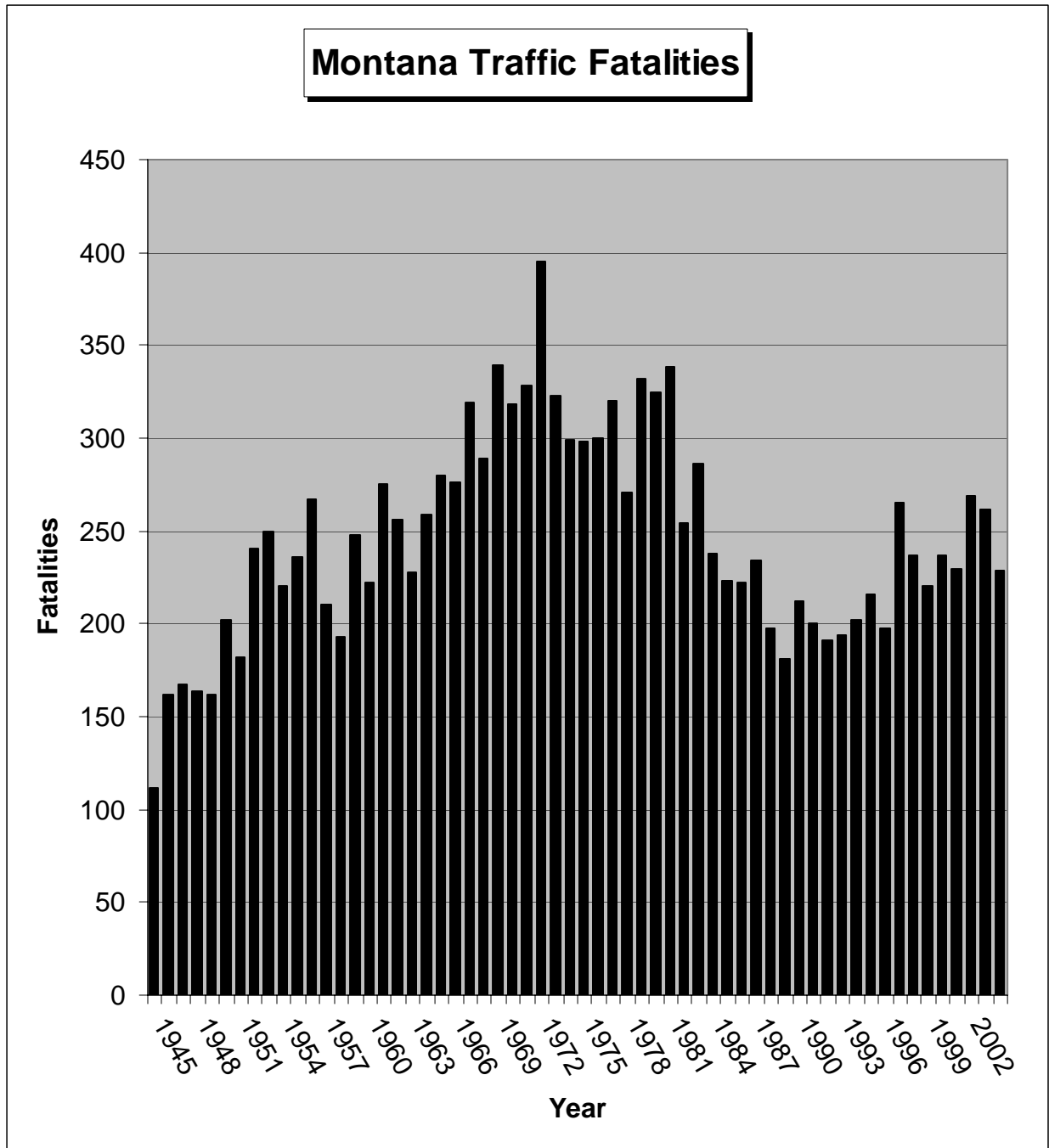
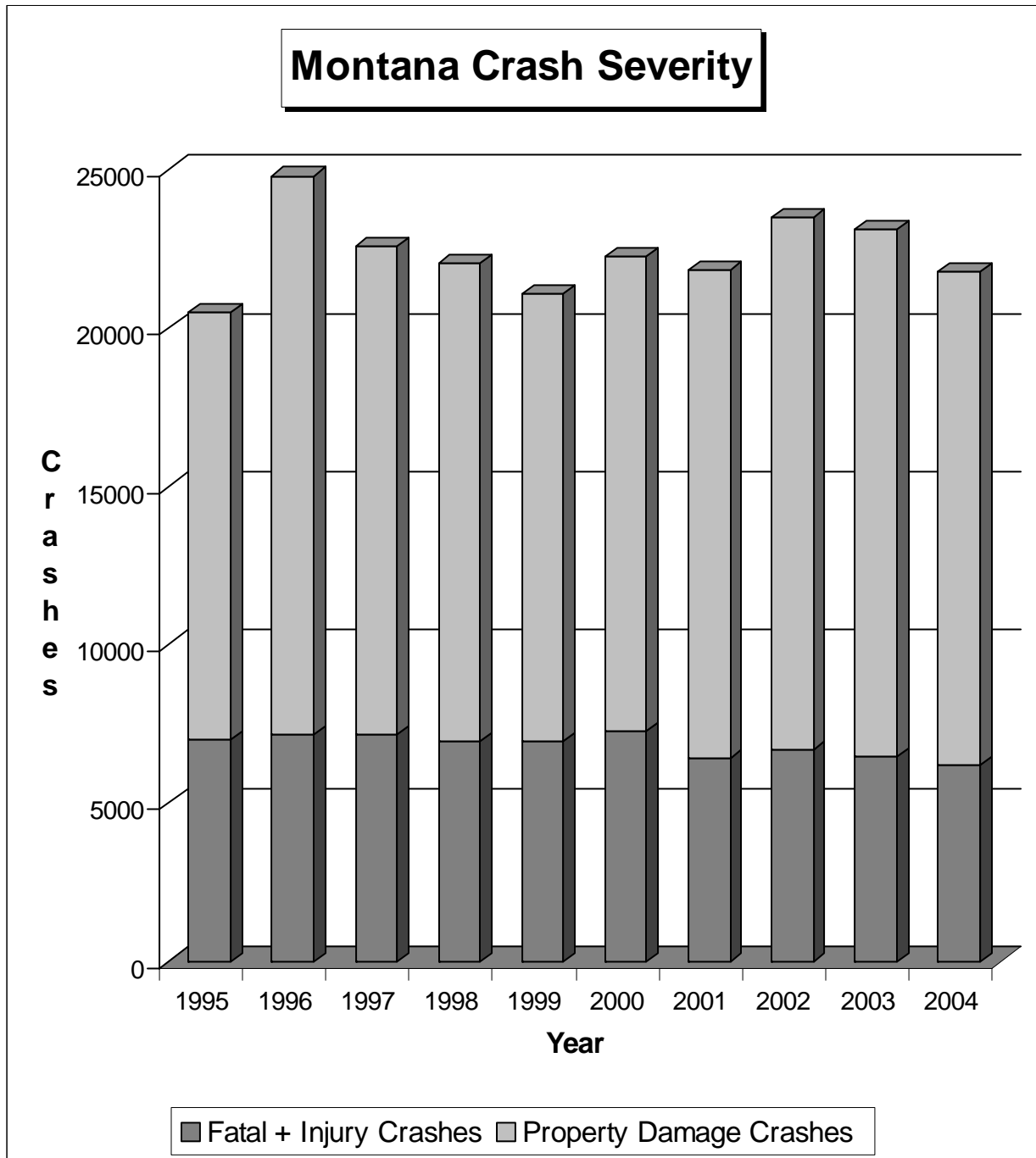


Figure 2



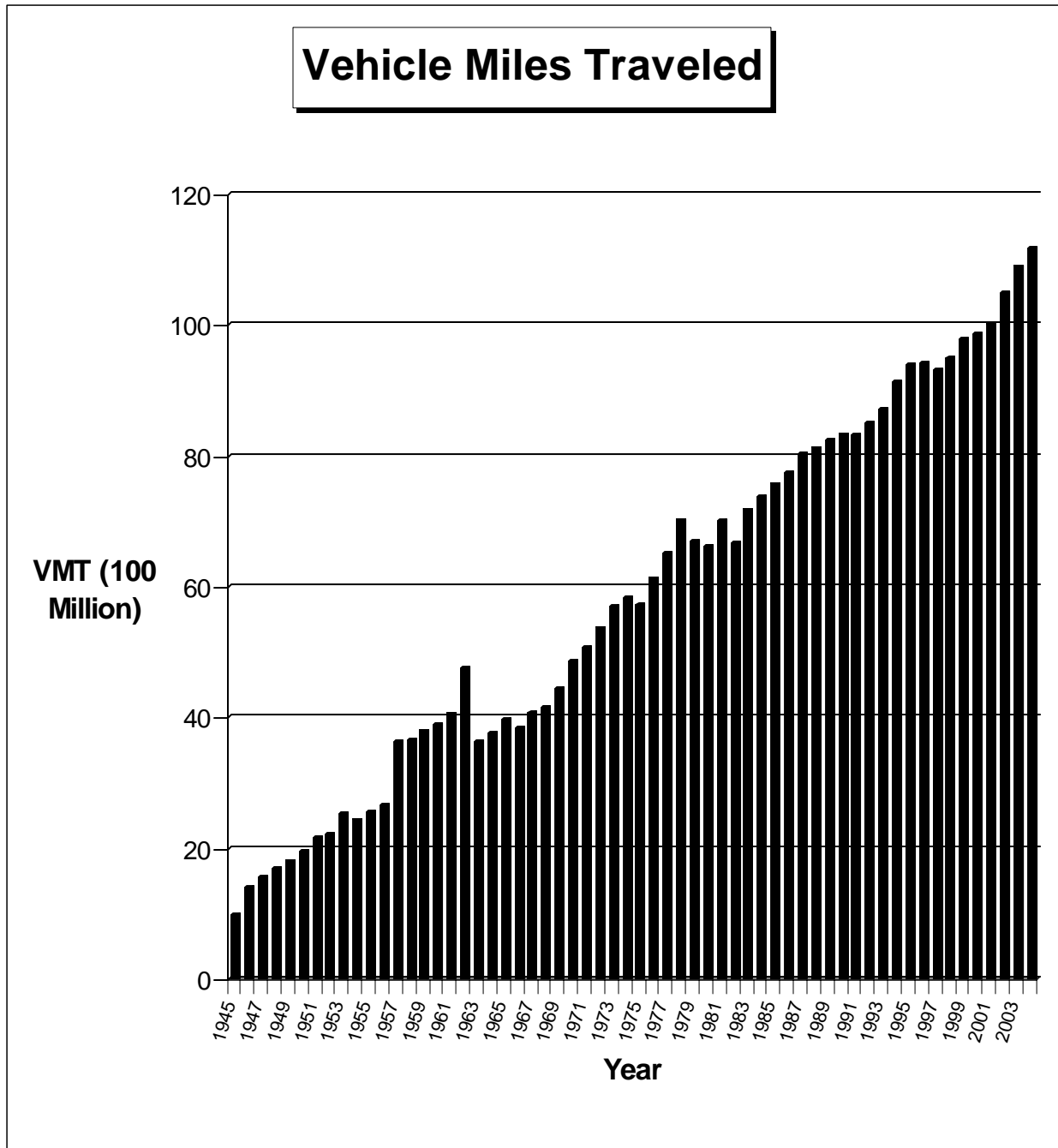
There are several exposure statistics in the area of traffic safety. These would include number and type of vehicles, number of licensed drivers by age and gender, physical road miles, population, and the number of vehicle miles driven. Table 2 displays Vehicle Miles Traveled (VMT), which is the estimated number of total miles driven by all vehicles on Montana public roads. This table also includes licensed drivers and registered motor vehicles. VMT is the exposure number that appears to have the greatest influence on the amount of traffic crashes that occur in Montana.

<p>Table 2</p> <p><b>Crash Exposure By Factors</b></p>			
Year	VMT (100 Million Miles)	Licensed Drivers	Registered Motor Vehicles (plus trailers)
1995	94.0	573,749	1,003,605
1996	94.2	NA	1,010,506
1997	93.2	NA	1,028,570
1998	94.9	646,512	1,042,183
1999	97.8	NA	NA
2000	98.6	678,899	1,009,930
2001	100.1	683,351	1,135,491
2002	104.9	694,743	1,165,808
2003	109.0	704,509	1,207,314
2004	111.8	712,880	1,248,215
Chg 1 Year	+2.5%	+1.2%	+3.4%
Chg 5 Year	+9.5%	---	---

Source: VMT – Montana Department of Transportation  
 Drivers Licenses and Registered Vehicles – Department of Justice

The annual vehicle miles traveled are shown on the following chart. These numbers increase almost every year. During 1972, the VMT for Montana was 5.4 billion and 395 fatalities occurred. Now in 2004, this figure has more than doubled at 11.2 billion miles traveled with 229 fatalities. Even when crash numbers, injuries and fatalities are held stable, gains in rates are made because of increases in exposure.

Figure 3



The fatality rate for Montana was 7.64 fatalities per hundred million miles traveled during 1969. This rate has been generally decreasing since then. It had decreased to 4.92 in 1980. For the year 2004, the fatality rate reached an all time low for Montana at 2.05.

The injury rate was 82.9 for the year 2004. This was also less than the 2003 rate and below all previous years. The crash rate was 194.9, which was below the rate for 2003 and lower than any year except 1987.

Table 3 Statewide Crash Rates (Per 100 Million Miles Traveled)			
Year	Fatality Rate	Injury Rate	Crash Rate
1995	2.29	109.1	218.2
1996	2.10	112.1	263.5
1997	2.84	114.7	242.6
1998	2.50	106.1	232.5
1999	2.25	106.9	215.4
2000	2.40	104.2	225.8
2001	2.30	89.7	218.2
2002	2.57	96.2	224.4
2003	2.40	88.4	212.5
2004	2.05	82.9	194.9
Chg 1 Year	-14.6%	-6.2%	-8.3%
Chg 5 Year	-14.0%	-14.6%	-11.1%

Source: TIS and Traffic Data Collection - Montana Department of Transportation

Historically, western rural states have tended to have rates that are above the national average. One of the reasons is the greater percentage of rural miles traveled. During 2001, the United States rural fatality rate was 2.3 while the urban fatality rate was 1.0. For the nation, rural fatalities accounted for 61% of the traffic fatalities, while in Montana 90% of the fatalities are a result of rural fatal crashes. From this information, it stands to reason that the expected Montana rate would be much closer to 2.3 than the national rate of 1.5. Figure 4 compares the national fatality rate with the Montana rate.

Figure 4

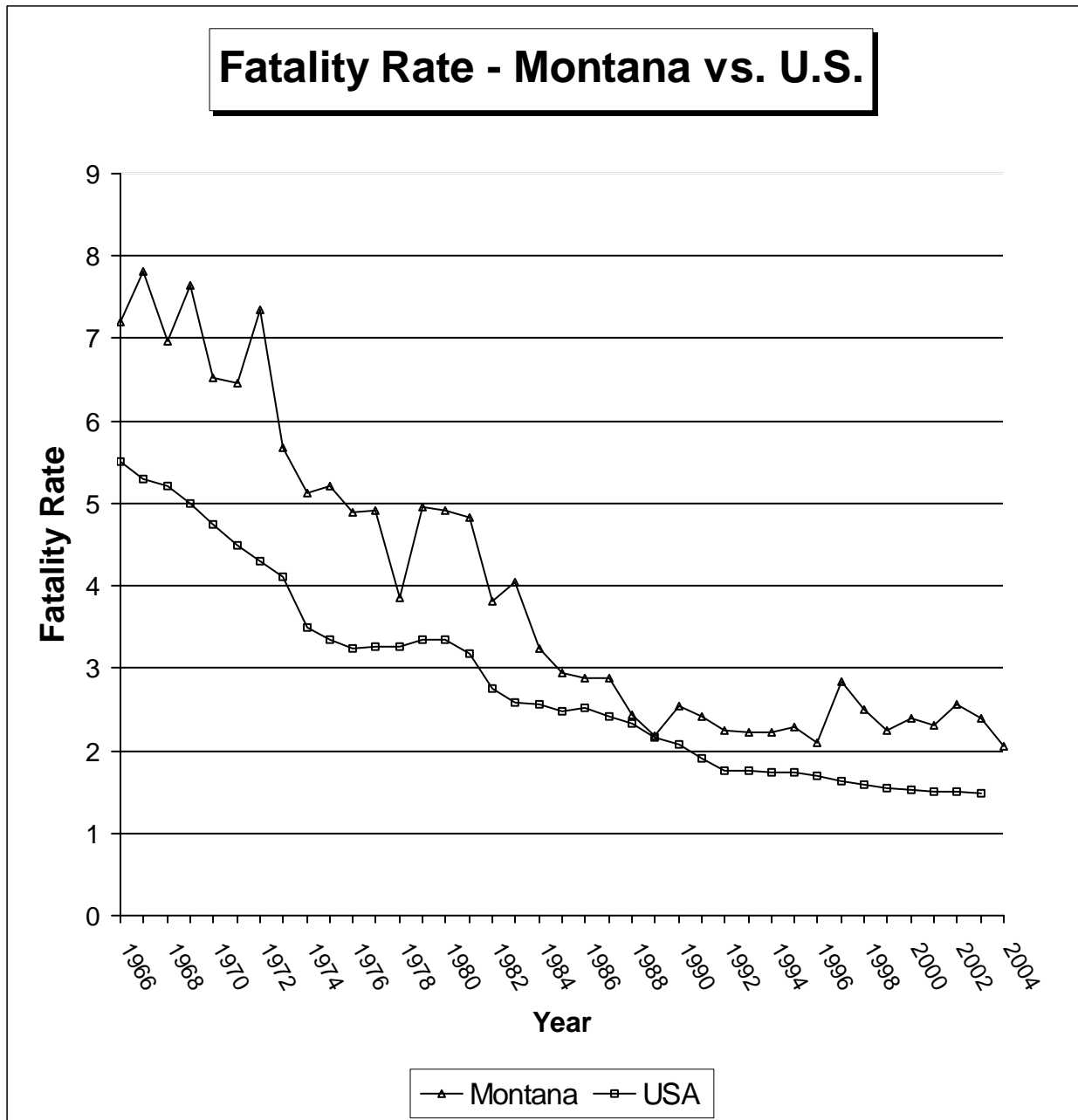


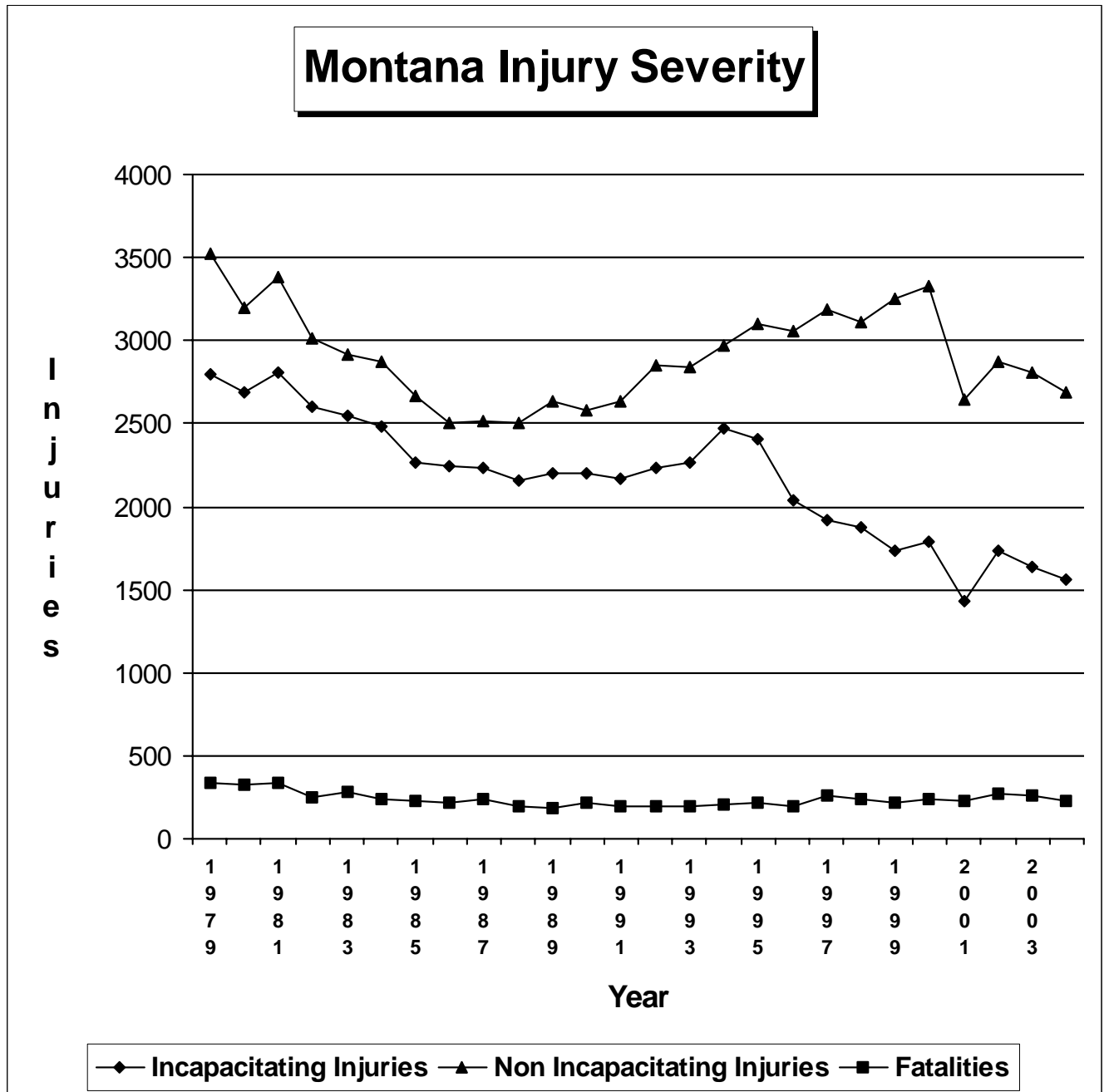
Table 4 displays the distribution of injury severity to persons involved in motor vehicle crashes for the last ten years. Injury severity may aid in determining whether restraint use and airbags are saving lives and reducing the level of injury severity. Also displayed are Severe Injuries (Fatalities + Incapacitating), which is probably the best true overall indicator for traffic crash trends.

<p>Table 4</p> <p><b>Injury Severity</b></p> <p>(persons)</p>					
Year	Fatalities	Incapacitating	Non Incapacitating	Possible Injury	Severe Injuries (Fatal plus Incapacitating)
1995	216	2,405	3,099	4,751	2,621
1996	198	2,043	3,057	5,457	2,241
1997	265	1,917	3,187	5,584	2,182
1998	237	1,834	3,044	5,202	2,071
1999	220	1,739	3,254	5,466	1,959
2000	237	1,790	3,325	5,683	2,027
2001	230	1,433	2,645	4,904	1,663
2002	269	1,738	2,876	5,472	2,007
2003	262	1,634	2,812	5,186	1,896
2004	229	1,557	2,692	5,013	1,796
Chg 1 Yr	-12.6%	-4.7%	-4.3%	-3.3%	-5.8%
Chg 5 Yr	-6.0%	-6.6%	-9.7%	-6.2%	-6.5%

Source: TIS - Montana Department of Transportation

Incapacitating injuries have decreased significantly (over 35 percent) during the past ten years, while vehicle miles traveled continues to increase. This number was lower than any recent year except for 2001. It would seem that occupant restraints, airbags and child restraints have accounted for at least part of this decrease. Severe injuries (fatalities plus incapacitating injuries) tend to be very costly in economic loss. The change downward in the number of severe injuries would appear to be the most significant change in the data within Montana during the last few years. Figure 5 on the following page shows clearly this history of injuries over time. This change in severity may also be changing because of more forgiving roadways and improved emergency medical services.

Figure 5



An examination of rural crashes is included in Table 5. The percentage of rural crashes in Montana decreased steadily in the 1980's and early 1990's and has since leveled. During the last twenty years, there has been an increase in the percentage of Montanan's living just outside of the cities. This may have some effect where vehicle miles are occurring.

The Billings Police Department did not report approximately 50% of their crashes during the period from 1998-2000, which decreased the number of urban crashes by 1000 to 2000 per year during that time. Reported crashes in Billings have returned to near previous levels. This dip affected the percentages for those three years.

<p style="text-align: center;"><b>Table 5</b> <b>Rural Crashes</b></p>					
Year	All Crashes	Rural Crashes	Percent Of Crashes that are Rural	Rural Injury Crashes	Percent of Injury Crashes that are Rural
1995	20,508	9,846	48.0%	3,803	55.9%
1996	24,822	11,812	47.6%	4,079	58.4%
1997	22,619	10,921	48.6%	4,056	58.4%
1998	22,068	11,061	59.1%	3,937	58.5%
1999	21,078	11,241	53.3%	4,036	59.6%
2000	22,254	11,637	52.3%	4,126	58.5%
2001	21,846	10,452	47.8%	3,390	54.5%
2002	23,527	11,489	48.8%	3,652	56.4%
2003	23,160	11,746	50.7%	3,600	57.8%
2004	21,783	10,576	48.6%	3,411	56.9%
Chg 1 Year	-5.9%	-10.0%	-4.1%	-5.2%	-1.6%
Chg 5 Year	-2.6%	-6.5%	-3.9%	-9.3%	-0.8%

Source: TIS - Montana Department of Transportation

The following table also examines rural crashes, but for fatal rural crashes in Montana. Fatal crashes occur mostly in the rural areas within the state.

Table 6 <b>Rural Fatal Crashes</b>			
Year	Fatal Crashes	Rural Fatal Crashes	Percent Rural
1995	186	157	84.4%
1996	177	158	89.3%
1997	223	208	93.3%
1998	208	180	86.5%
1999	194	176	90.7%
2000	203	185	91.1%
2001	201	187	93.0%
2002	232	209	90.1%
2003	239	214	89.5%
2004	209	184	88.0%
Chg 1 Year	-12.6%	-14.0%	-1.7%
Chg 5 Year	+2.2%	-5.3%	-3.2%

Source: TIS - Montana Department of Transportation

Rural crashes, because of the speed involved, tend to have many more fatalities and serious injuries than urban crashes. Twenty-eight fatalities occurred on urban roads during 2004 from twenty-five different crashes. The other 201 fatalities occurred on rural roads from 184 crashes. Similarly there were 260 incapacitating injuries on urban roads while 1296 of these serious injuries occurred in the rural setting.

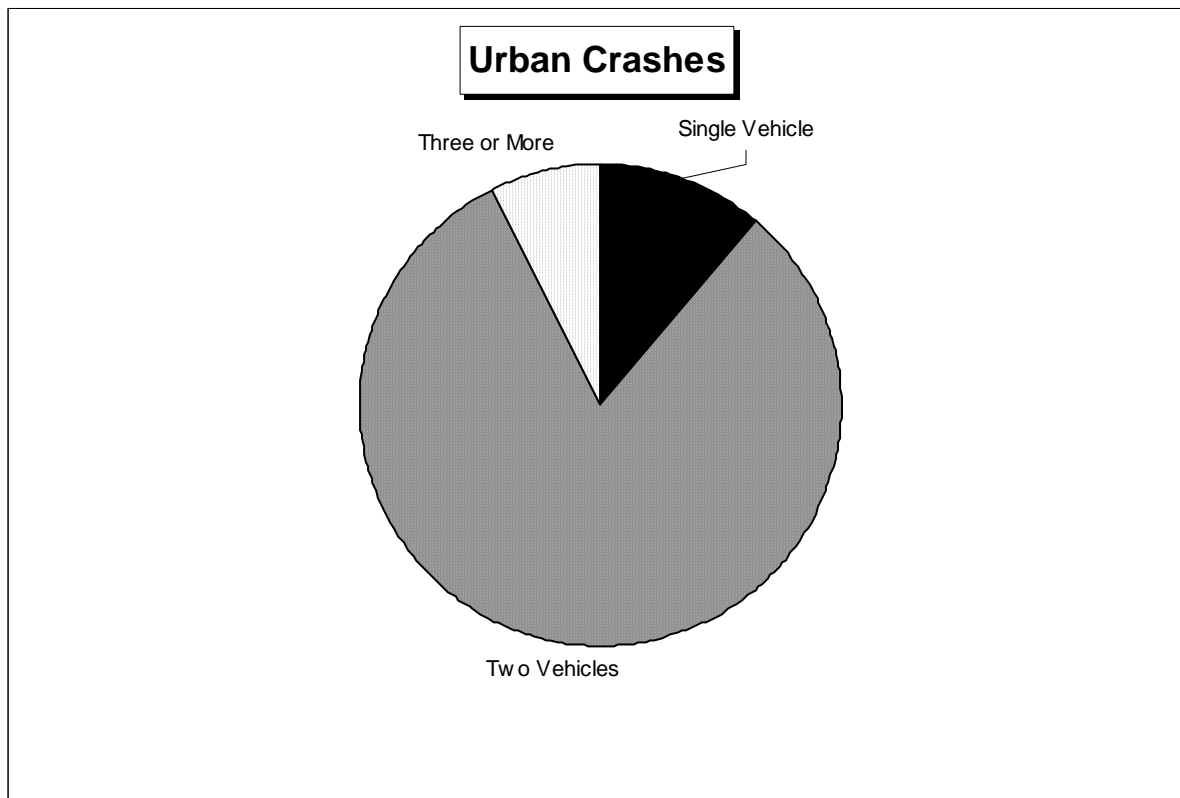
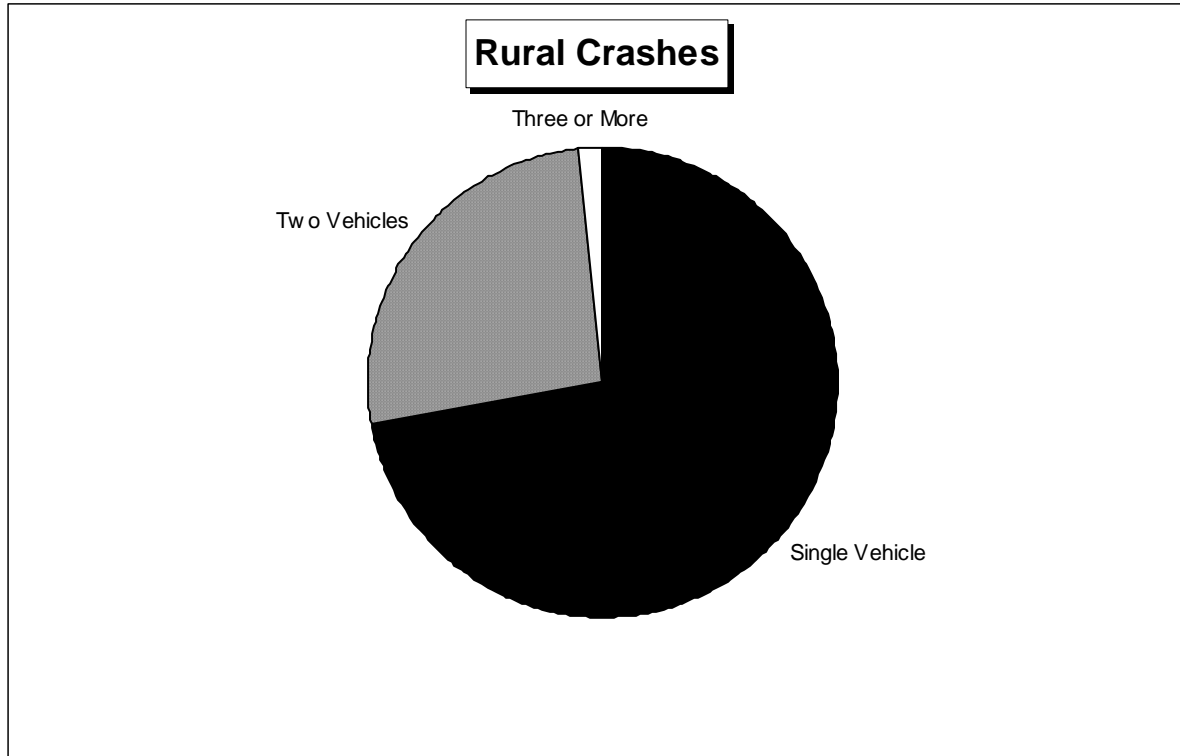
Rural crashes averaged 1.3 vehicles per crash, while urban crashes averaged 2.0 vehicles. Crash configurations are much different. Most rural crashes (72.4%) involve just one vehicle, while most urban crashes (81.5%) involve two vehicles. Tables 7 and 8 on the following page tabulate rural and urban crashes by the number of vehicles involved. A large number of run off the road single vehicle crashes occur in the rural setting in Montana. City crashes tend to be collisions of multiple vehicles at or near intersections. These events tend to be multiple vehicles crashing at an angle or one vehicle striking the rear of another vehicle.

Table 7 Number of Involved Vehicles --- Rural vs. Urban Crashes – 2004						
Vehicles	Rural		Urban		Total	
	Crashes	Percent	Crashes	Percent	Crashes	Percent
1	7,652	72.4%	1,242	11.1%	8,894	40.8%
2	2,740	25.9%	9,131	81.5%	11,871	54.5%
3	164	1.6%	721	6.4%	885	4.1%
4	17	0.2%	95	0.8%	112	0.5%
>=5	3	0.0%	18	0.2%	21	0.1%
Total	10,576	100.0%	11,207	100.0%	21,783	100.0%

Table 8 Number of Involved Vehicles --- Rural vs. Urban Fatal Crashes – 2004						
Vehicles	Rural		Urban		Total	
	Fatal Crashes	Percent	Fatal Crashes	Percent	Fatal Crashes	Percent
1	137	74.5%	11	44.0%	148	70.8%
2	39	21.2%	9	36.0%	48	23.0%
3	7	3.8%	4	16.0%	11	5.3%
4	1	0.5%	1	4.0%	2	0.9%
>=5	0	0.0%	0	0.0%	0	0.0%
Total	184	100.0%	25	100.0%	209	100.0%

The figure on the following page shows the number of vehicles by percentage in both rural and urban situations.

Figure 6



When examining type of collision for multiple-vehicle crashes in rural incidents, rear end collisions were most numerous. Right angle crashes and sideswipe crashes were next. These collision-types accounted for over 77% of the total. For Urban areas, right angle crashes were the most common collision type, followed by rear end crashes and other collision types. Rear end and right angles crashes accounted for over 66% of these urban crashes.

<p>Table 9</p> <p><b>Type Of Collision --- Rural vs. Urban Crashes - 2004</b></p> <p>(Two or More Vehicles)</p>				
Type of Collision	Rural		Urban	
	Crashes	Percent	Crashes	Percent
Rear End	989	33.8%	3,246	32.6%
Sideswipe – Same Direction	346	11.8%	764	7.7%
Sideswipe – Opposite Direction	229	7.8%	180	1.8%
Left Turn – Same Direction	61	2.1%	114	1.1%
Left Turn – Opposite Direction	84	2.9%	397	4.0%
Right Angle	713	24.4%	3,410	34.2%
Right Turn – Same Direction	16	0.5%	87	0.9%
Right Turn – Opposite Direction	10	0.3%	20	0.2%
Head On	183	6.3%	102	1.0%
Other	293	10.0%	1,645	16.5%
Total	2,924	100.0%	9,965	100.0%

Economic loss from motor vehicle crashes is shown for recent years in Table 10. These losses are calculated using national estimates for average crash cost, injury cost and fatality cost, which are provided by the National Safety Council. These estimates cover wage loss, medical expense, insurance administration and property damage costs. Indirect costs for human suffering and loss are more intangible and are not included as part of this estimate.

<p>Table 10</p> <p><b>Economic Loss in Crashes</b></p> <p>(Millions of Dollars)</p>	
Year	Economic Loss
1995	\$479
1996	\$476
1997	\$509
1998	\$591
1999	\$677
2000	\$712
2001	\$648
2002	\$757
2003	\$780
2004	\$806
Change 1 Year	+3.3%
Change 5 Year	+12.8%

Source: Montana Department of Transportation

Economic loss due to traffic crashes increased slightly in 2004 even though fatalities and serious injuries were lower. Last year the economic loss for Montana crashes was just over three-quarters of a billion dollars. That is an average of over \$870 for every citizen in Montana. Over 170 million dollars of loss were the result of alcohol related crashes.

Table 11 shows crash and injury rates based upon a calculated exposure factor. This exposure factor is calculated using a combination of data. Vehicle Miles Traveled (VMT) for on-system roads in Montana and population for each county are used to create this factor. Each county is placed in one of four groups according to population size. An 'X' is shown at right for counties that are fifteen percent above the group average for either of the two rates. It should be noted that 72.0% of the crashes in Montana and 73.9% of the injuries occur in the nine largest counties contained in the first group.

Table 11 Crash and Injury Rates by County – 2004							
County	Population (2004)	Exposure Factor (2004)	Crashes	Crash Rate	Injuries	Injury Rate	
Population greater than 20,000							
Yellowstone	134,717	1,170.2	3,432	2.93	1,599	1.37	X
Missoula	99,018	1,052.8	2,529	2.40	1,025	0.97	
Flathead	81,217	878.6	1,977	2.25	1,007	1.15	
Cascade	79,849	677.4	2,179	3.22	784	1.16	X
Gallatin	75,637	912.7	1,814	1.99	598	0.66	
Lewis & Clark	57,972	517.9	1,759	3.40	604	1.17	X
Ravalli	39,376	346.1	747	2.16	294	0.85	
Silver Bow	33,093	317.3	674	2.12	203	0.64	
Lake	27,919	351.0	565	1.61	367	1.05	
Total/Ave	628,798	6224.0	15,676	2.52	6,481	1.04	
Population 10,000 – 19,999							
Lincoln	19,101	185.8	258	1.39	151	0.81	X
Hill	16,376	143.7	383	2.67	95	0.66	X
Park	15,791	273.4	415	1.52	157	0.57	
Glacier	13,508	140.1	144	1.03	127	0.91	X
Big Horn	13,005	274.3	174	0.63	129	0.47	
Fergus	11,539	128.6	215	1.67	122	0.95	X
Custer	11,454	140.3	280	2.00	82	0.58	X
Sanders	10,945	155.3	188	1.21	139	0.90	X
Jefferson	10,857	255.5	382	1.50	121	0.47	
Roosevelt	10,660	108.3	99	0.91	66	0.61	
Total/Ave	133,236	1,805.3	2,538	1.41	1,189	0.66	

Table 11 (continued)  
**Crash and Injury Rates by County – 2004**

County	Population (2004)	Exposure Factor (2004)	Crashes	Crash Rate	Injuries	Injury Rate	
Population 5,000-9,999							
Carbon	9,755	158.9	204	1.28	109	0.69	X
Rosebud	9,270	157.1	127	0.81	87	0.55	
Richland	9,112	121.4	140	1.15	63	0.52	
Deer Lodge	9,088	118.3	130	1.10	54	0.46	
Beaverhead	8,845	156.9	196	1.25	58	0.37	
Dawson	8,635	130.4	242	1.86	97	0.74	X
Stillwater	8,391	179.1	221	1.23	98	0.55	
Valley	7,270	90.0	144	1.60	62	0.69	X
Madison	7,079	138.9	163	1.17	73	0.53	
Powell	6,873	195.0	223	1.14	86	0.44	
Blaine	6,668	83.6	66	0.79	31	0.37	
Teton	6,283	83.6	107	1.28	33	0.39	
Pondera	6,148	85.1	98	1.15	36	0.42	
Chouteau	5,575	85.2	87	1.02	43	0.50	
Toole	5,094	95.1	76	0.80	36	0.47	
Total/Ave	114,086	1878.6	2,224	1.18	966	0.51	
Population less than 5,000							
Broadwater	4,530	116.8	162	1.39	70	0.60	X
Musselshell	4,515	66.2	74	1.12	20	0.30	
Phillips	4,201	61.2	81	1.32	49	0.80	X
Mineral	3,879	214.2	258	1.20	87	0.41	
Sweet Grass	3,699	147.4	106	0.72	64	0.43	
Sheridan	3,620	45.3	59	1.30	31	0.68	X
Granite	2,853	120.7	121	1.00	57	0.47	
Fallon	2,774	34.1	43	1.26	22	0.65	X
Judith Basin	2,191	64.4	50	0.78	20	0.31	
Wheatland	2,068	41.5	43	1.04	14	0.34	
Liberty	2,020	23.6	14	0.59	3	0.13	
Meagher	1,977	24.5	34	1.39	21	0.86	X
Daniels	1,844	21.2	44	2.08	21	0.99	X
Powder Rvr	1,785	49.1	46	0.94	11	0.22	
McCone	1,775	36.7	22	0.60	18	0.49	
Carter	1,324	32.2	14	0.43	6	0.18	
Garfield	1,218	26.3	18	0.68	27	1.03	X
Prairie	1,147	36.1	44	1.22	18	0.50	X
Golden Vally	1,117	26.1	22	0.84	9	0.34	
Wibaux	971	28.2	29	1.03	10	0.35	
Treasure	745	41.0	28	0.68	24	0.59	X
Petroleum	492	12.2	26	2.13	23	1.89	X
Total/Ave	50,745	1269.0	1,338	1.05	625	0.49	



## C. CRASH DEMOGRAPHICS

### 1. Gender of Drivers

Male drivers are more likely to be involved in crashes than female drivers, when prorated by the number of licensed drivers. However, when based upon average national vehicle miles driven by gender, this difference in crash rates largely disappears. No state statistics on miles traveled by gender are available. National estimates by gender are available and these estimates show that male drivers account for about 62.8% of the miles traveled.

Driver involvement in crashes by gender is shown in Table 12. While male involvement is 59.1% of all crashes, involvement by females has been increasing consistently over the past 20 years as female vehicle miles driven increases.

Table 12 Driver's Gender in Crashes					
Year	Gender of Drivers			Percent of Total	
	Female	Male	Total	Female	Male
1995	12,420	19,687	32,110	38.7%	61.3%
1996	14,932	23,326	38,258	39.0%	61.0%
1997	13,943	20,915	34,858	40.0%	60.0%
1998	12,818	19,382	32,200	39.8%	60.2%
1999	12,248	18,904	31,152	39.3%	60.7%
2000	13,237	20,008	33,245	39.8%	60.2%
2001	13,189	19,036	32,225	40.9%	59.1%
2002	14,623	21,082	35,705	41.0%	59.0%
2003	14,330	20,650	34,980	41.0%	59.0%
2004	13,578	19,428	33,006	41.1%	58.9%
Chg 1 Year	-5.2%	-5.9%	-5.6%	+0.2%	-0.2%
Chg 5 Year	+0.4%	-2.5%	-1.4%	+1.7%	-1.2%

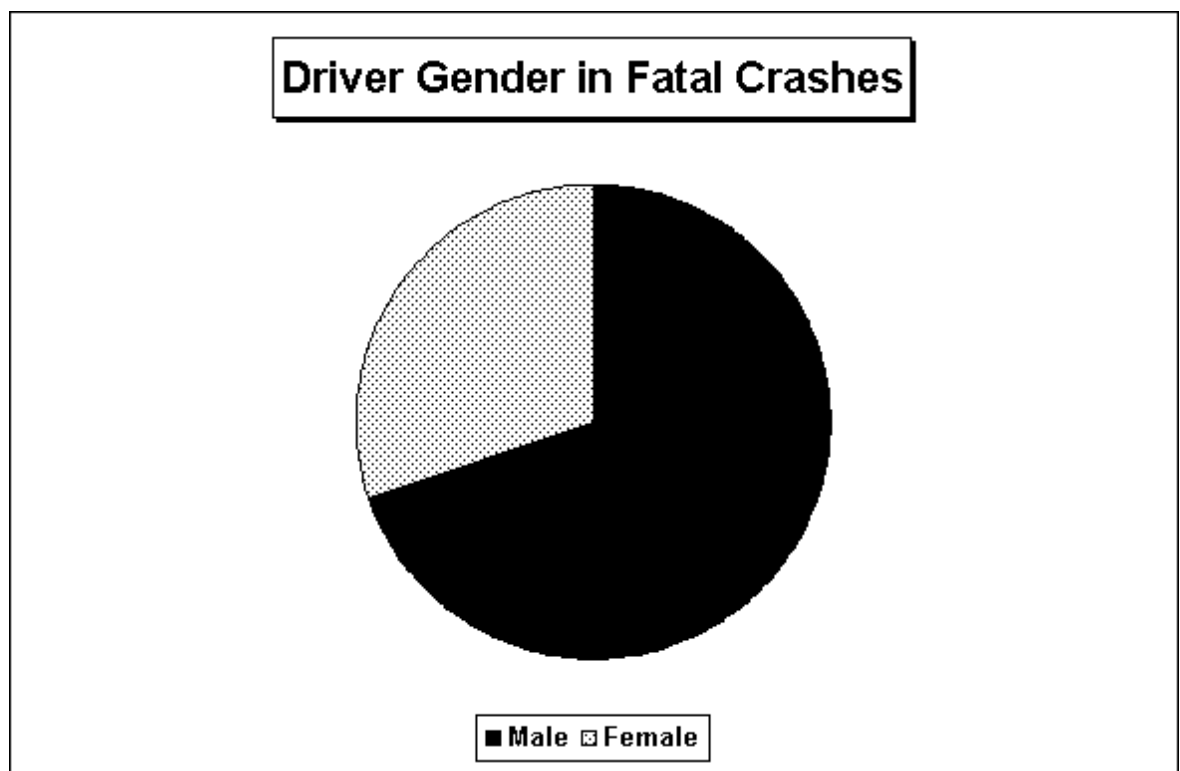
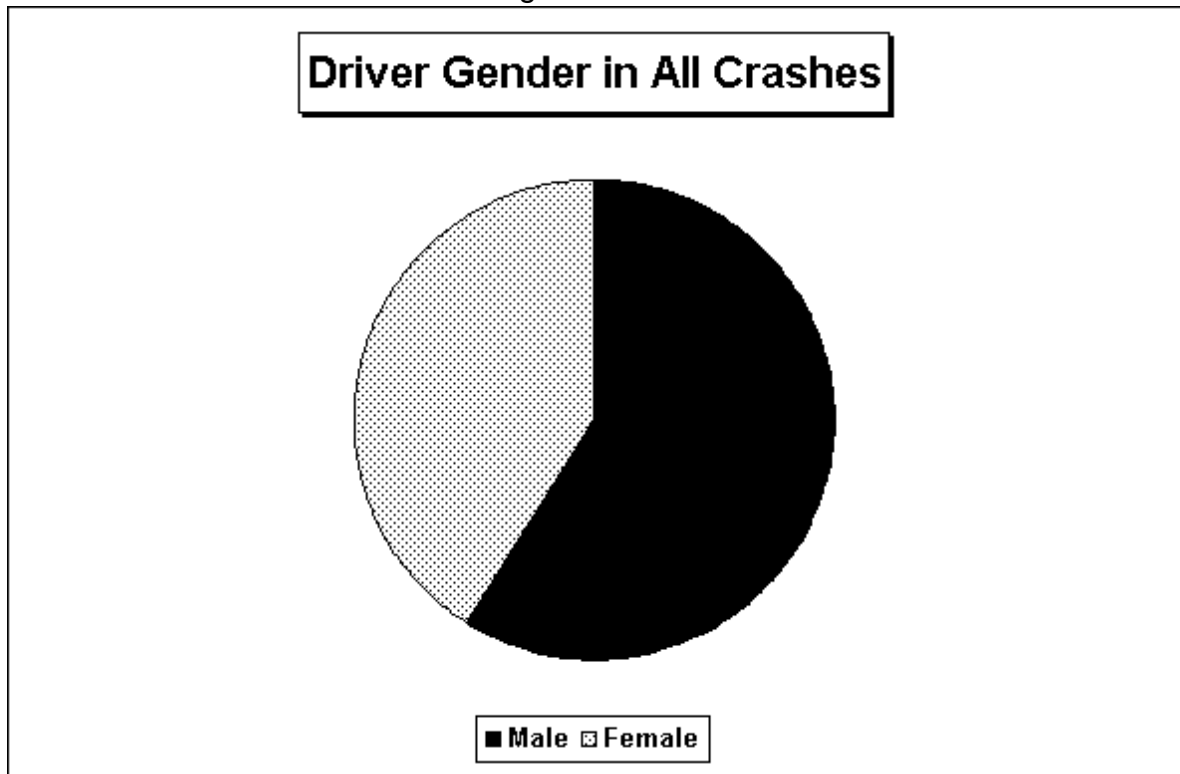
Men have a disproportionate involvement in **fatal** crashes. Past studies have shown that men have higher involvement in overturns, other non-collision crashes, crashes into fixed objects and the striking of animals. Much of this is due to men's much higher involvement in alcohol-related crashes. Table 13 follows with information on the gender of drivers in fatal crashes. Female involvement has been trending upward in recent years.

Table 13 <b>Driver's Gender in Fatal Crashes</b>					
Year	Gender of Drivers			Percent of Total	
	Female	Male	Total	Female	Male
1995	52	202	254	20.5%	79.5%
1996	71	177	248	28.6%	71.4%
1997	74	218	292	25.3%	74.7%
1998	68	213	281	24.2%	75.8%
1999	78	187	265	29.4%	70.6%
2000	77	225	302	25.5%	74.5%
2001	63	213	276	22.8%	77.2%
2002	71	248	319	22.3%	77.7%
2003	96	236	332	28.9%	71.1%
2004	86	198	284	30.3%	69.7%
Chg 1 Year	-10.4%	-16.1%	-14.5%	+4.8%	-2.0%
Chg 5 Year	+11.7%	-10.7%	-5.0%	+17.5%	-6.1%

Source: TIS – Montana Department of Transportation

With the relatively small number of fatal crashes in Montana, the above percentages vary from year to year. It appears that during this ten-year period approximately 75% of the drivers in these crashes are male. Figure 7 on the following page displays the ratio of drivers by gender involved in all crashes and fatal crashes during 2004.

Figure 7





## 2. Gender of Injuries

Injury involvement by gender is shown below in Table 14. In 1997, females for the first time in Montana sustained more injuries than males resulting from traffic crashes. This occurred again in 2001. There has been a slow and steady increase in vehicle miles traveled for women nationally over the past few decades. This would explain the general increase in injury percentage. It is interesting that women are sustaining as many injuries as men, since they tend to wear restraints more than men and they, at least nationally, travel less vehicle miles. Men still account for about 65 to 70% of the fatalities.

Table 14 Injuries by Gender						
Year	Injuries			Fatalities		
	Female	Male	Percent Female	Female	Male	Percent Female
1995	4,961	5,288	48.4%	70	145	32.6%
1996	5,206	5,346	49.3%	69	129	34.8%
1997	5,377	5,322	50.3%	97	168	36.6%
1998	4,634	4,871	48.8%	72	165	30.4%
1999	4,769	5,015	48.7%	73	147	33.2%
2000	4,957	5,305	48.3%	71	166	30.0%
2001	4,252	4,152	50.6%	65	165	28.3%
2002	4,648	4,798	49.2%	79	190	29.4%
2003	4,450	4,645	48.9%	84	178	32.1%
2004	4,491	4,757	48.6%	80	149	34.9%
Chg 1 Yr	+0.9%	+2.4%	-0.6%	-4.8%	-16.3%	+8.7%
Chg 5 Yr	-2.7%	-0.5%	-1.1%	+7.5%	-11.9%	+14.1%

Source: TIS – Montana Department of Transportation



### **3. Age of Injuries**

Injury involvement by age is shown below. There has been a significant trend downward for the five to nineteen age groups and the 25 to 44 age groups. The age groups between 45 and 64 have trended upward over the last few years. It should be noted that the 15-19 crash numbers are still very high.

Table 15 <b>Injuries by Age (excludes fatalities)</b>										
Year	0-4	5-14	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75+
1995	183	833	2365	1364	1739	1530	956	510	391	291
1996	213	812	2229	1311	1776	1677	1054	598	466	318
1997	323	798	2422	1331	1695	1611	1117	555	447	327
1998	283	729	2067	1236	1473	1398	1040	555	407	323
1999	288	732	2069	1220	1311	1430	1027	524	355	325
2000	249	804	2273	1368	1476	1459	1259	638	399	336
2001	216	578	1821	1103	1223	1285	1016	533	337	291
2002	226	682	1976	1277	1428	1383	1183	608	362	324
2003	232	668	1812	1291	1363	1203	1146	653	390	287
2004	214	645	1863	1329	1416	1176	1150	749	392	312
Chg 1 Year	-7.8%	-3.4%	+2.8%	+2.9%	+3.9%	-2.2%	+0.3%	+14.7%	+0.5%	+8.7%
Chg 5 Year	-11.6%	-6.9%	-6.4%	+6.2%	+4.1%	-13.0%	+2.1%	+26.7%	+6.3%	-0.2%

Source: TIS – Montana Department of Transportation

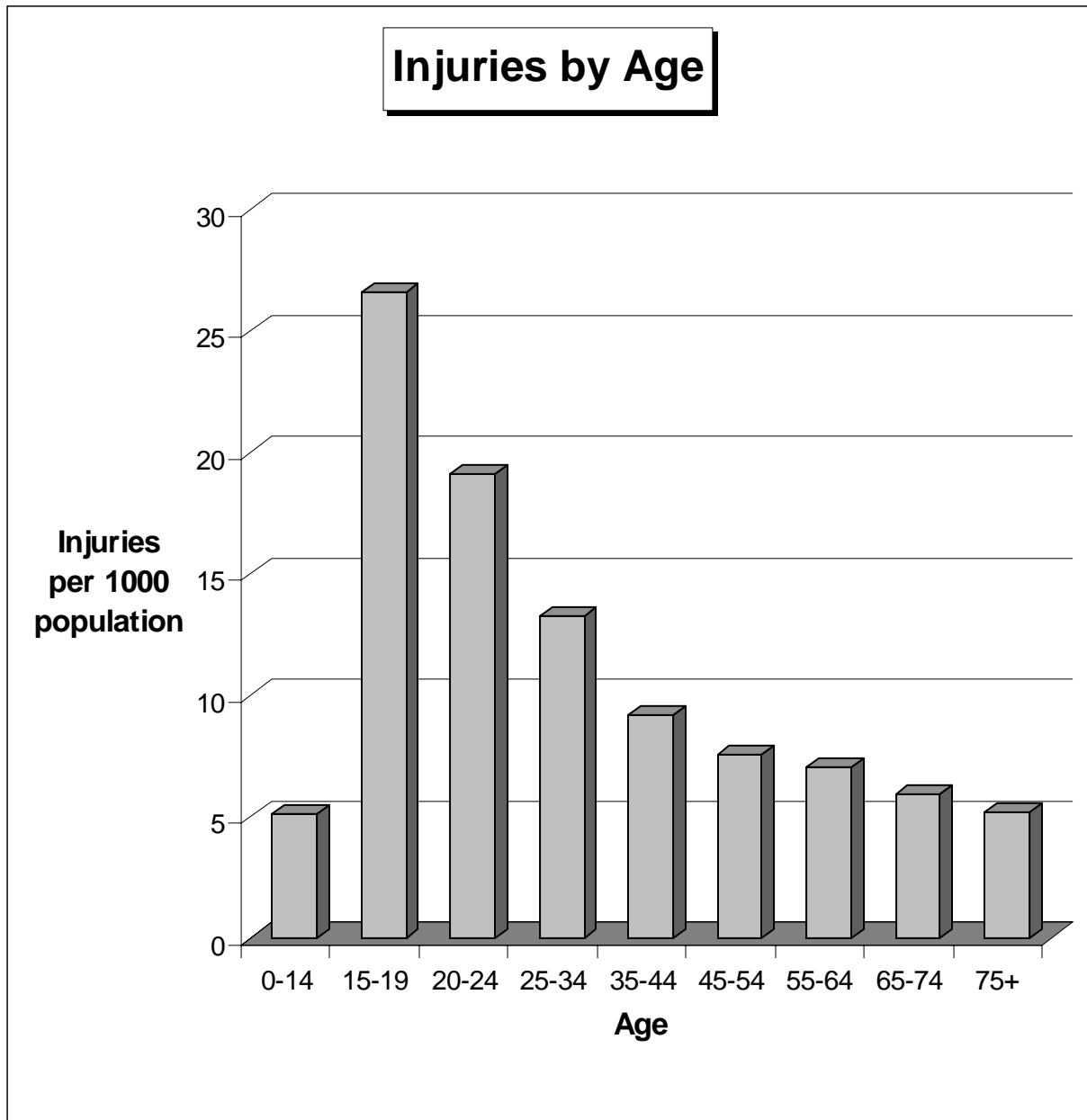
Fatalities by age are presented below in Table 16. Fatalities appear to be increasing in the age groups from 45 to 64. The table presents ten years of data with the ten-year average reported for each age group on the bottom line.

Table 16 Fatalities by Age										
Year	0-4	5-14	15-19	20-24	25-34	35-44	45-54	55-64	65-74	75+
1995	4	14	27	17	36	34	24	22	14	23
1996	6	6	19	33	29	37	25	13	13	17
1997	7	6	35	31	38	42	42	20	18	24
1998	3	7	29	26	32	41	34	18	20	27
1999	1	8	39	28	30	34	31	19	11	17
2000	4	15	37	27	44	33	26	22	12	17
2001	1	13	16	32	38	39	38	26	13	14
2002	1	7	37	28	38	36	51	27	22	20
2003	4	9	36	37	34	34	42	27	17	22
2004	1	6	31	28	33	28	38	27	17	20
Ave	3.2	9.1	30.6	28.7	35.2	35.8	35.1	22.1	15.7	20.1

Source: TIS – Montana Department of Transportation

Figure 8 on the following page shows by age the rate of injuries per 1000 population. From this chart, it is quite evident from that greater danger exists for teens and young adults.

Figure 8





#### 4. Race

The population of Montana has little racial diversity. The 2000 census showed the following breakdown of population.

Table 17 Montanans by Race							
Race	White	American Indian	Two or More Races	Other	Asian	Blacks	Hawaiian and Pacific Isl
Percent	90.6%	6.2%	1.7%	0.6%	0.5%	0.3%	0.1%

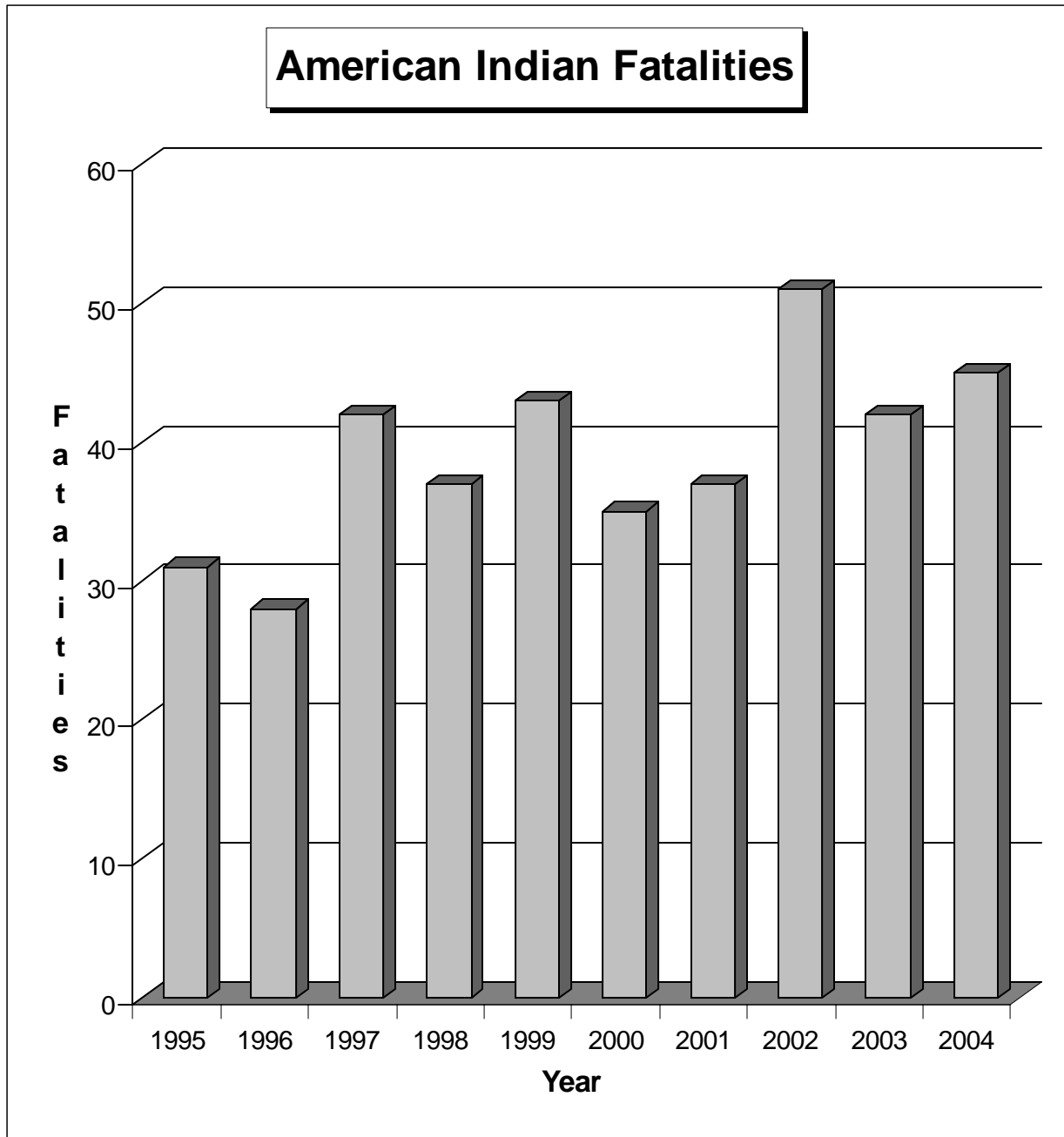
The two predominant races account for 96.8 percent of the population and are the only two that contain enough data to analyze. The only available crash data by race is from the Fatality Analysis Reporting System (FARS).

Table 18 American Indian Fatalities						
Year	American Indian Fatalities	Total Fatalities	Percent of all Montana Fatalities	Indian Alcohol Related Fatalities	Percent of all Indian Fatalities	Percent of Montana Alcohol Related Fatalities
1995	31	216	14.4%	23	74.2%	24.2%
1996	28	198	14.0%	19	67.9%	24.4%
1997	42	265	15.8%	30	71.4%	24.2%
1998	37	237	15.6%	21	56.8%	20.0%
1999	43	220	19.5%	26	60.5%	23.9%
2000	35	237	14.8%	28	80.0%	23.9%
2001	37	230	16.1%	26	70.2%	25.0%
2002	51	269	18.9%	35	68.6%	27.8%
2003	42	262	16.0%	35	83.3%	27.3%
2004	45	229	19.7%	32	71.1%	30.5%

Source: FARS Database - MDT

During the past four years seat belt usage for Indian occupant fatalities has been less than 7%. Seat belt usage for other race occupant fatalities has been just over 30%. Indian fatalities during each of the last ten years account for 14.0 to 19.7% of the total Montana fatalities, which is two to three times the percentage of population. Alcohol related American Indian fatalities accounted for 30.5% of the total alcohol related fatalities during 2004. Figure 9 displays Indian fatalities over the last few years.

Figure 9



## 5. Vehicle Type

### National Data

There are major differences in severity of crashes depending on vehicle type. The rate of fatalities per 100,000 registered vehicles varies greatly. Nationally, during 2001, this rate for single vehicle fatal crashes per 100,000 vehicles is shown in Table 19.

A large portion of this difference is due to the chance of a rollover. NHTSA conducted a crash analysis of fatal crashes for different vehicle types during 2003. The percentage occurrence of rollover is also shown in Table 19.

Table 19 Fatality Rate		
Type of Vehicle	Fatality Rate (per 100,000 vehicles)	Rollover Occurrence
Passenger Cars	8.0	15.8%
SUV's	11.8	35.7%
Pickups	11.4	24.5%
15+ Passenger Vans	13.9	---
Other Vans	6.6	18.7%

Source: NHTSA

SUV's and pickups have a much higher propensity to rollover. The tendency in single vehicle crashes is for a driver to overcorrect when they first realize that they are in trouble. This overcorrection often leads to a rollover.

Over 44 percent of unrestrained fatal occupants are ejected from all types of vehicles as compared to only 6 percent of restrained fatal occupants according to 2003 National data. The risk of a fatal injury is many times higher if ejected than if not ejected. Fatally injured unrestrained occupants were ejected from the different types of vehicles as shown in Table 20.

Table 20 Ejection Rates for Unrestrained Fatal Occupants	
Type of Vehicle	Ejection Rates
Passenger Cars	35%
SUV's	65%
Pickups	49%
Minivan	49%
Other Vans	49%

Source: NHTSA

## Montana Data

As noted above, pickups and SUV's have a high susceptibility to rollover. Montana seat belt usage is much lower in pickups, which compounds the problem of rollovers. The following usage rates by vehicle type were obtained from a survey conducted during April 2005.

Table 21 <b>Seat Belt Usage by Vehicle Type</b>	
Type of Vehicle	Usage Rate
Passenger Cars	81.3%
SUV's	79.1%
Pickups	61.5%

Source: State Highway Traffic Safety Office

There may be a perception by the public that most fatalities occur in multi-vehicle crashes involving head on and angle crashes. Many occupants of large vehicles perceive that they are safer and then decide not to wear their seat belt. In reality, 66% of fatal crashes in Montana are single vehicle crashes and 55% are road departure crashes. Single vehicle fatal crashes usually involve a rollover. It would appear that Montanan's must be educated about the rollover tendencies of vehicles and the importance of wearing belts in vehicles because of this risk of rollover and ejection.

There are a lot of reasons why Montana has the highest fatality rate in the nation in addition to a high incidence of impaired driving.

- A very high percentage of registered vehicles in the state are pickups and SUV's and these vehicles have higher fatality rates.
- Restraint use is significantly lower in pickups.
- A high percentage of driving is rural so that a high percentage of the vehicle miles traveled are at high speeds.
- A high percentage of pickup drivers are male, are more likely to be impaired and are more likely to drive aggressively.

These are some of the reasons that Montana has the highest percentage of fatalities that result from pickups, SUV's and vans. During 2002, 46% of our fatalities involved these types of vehicles while for the nation this occurred in 25% of the fatalities.

Table 22 <b>Percent of Fatalities by Vehicle Type</b>		
Type of Vehicle	Montana	U.S.
Passenger Car	36%	51%
Pickups, SUV's and Vans	46%	25%
Trucks	2%	2%
Motorcycles	9%	7%
Pedestrians	5%	11%

## D. TRAFFIC SAFETY AREAS OF CONCERN

### 1. Impaired Driving

Alcohol/drug related crashes accounted for 9.7 percent of all reported traffic crashes during 2004. While this percentage is above the all time low reached in 1996, it is still far below the 22.3% of alcohol related crashes reported during 1983. A plateau has been reached in this percentage and it appears that it will take an even greater statewide effort to move it lower.

Alcohol/drug related crashes tend to result in more severe injuries than do crashes with no impairment. During the early 1980's, injuries related to alcohol accounted for as much as 36% of the total. Last year, alcohol/drug related injuries were at 19.1%. Economic Loss from driver impairment crashes was over 170 million dollars during 2004. Table 23 below presents the impaired crash counts.

Table 23 Alcohol/Drug Related Crashes						
Year	All Crashes			Injuries		
	Alcohol Related	All	Percent of All	Alcohol Related	All	Percent of All
1995	2,313	20,508	11.3%	1,897	10,255	18.5%
1996	2,156	24,882	8.7%	1,722	10,557	16.3%
1997	2,016	22,619	8.9%	1,818	10,688	17.0%
1998	2,142	22,068	9.7%	1,829	10,075	18.2%
1999	2,177	21,078	10.3%	1,771	10,459	16.9%
2000	2,211	22,254	9.9%	1,824	10,798	16.9%
2001	2,035	21,846	9.3%	1,652	8,982	18.4%
2002	2,288	23,527	9.7%	1,745	10,086	17.3%
2003	2,173	23,160	9.4%	1,638	9,632	17.0%
2004	2,113	21,783	9.7%	1,767	9,263	19.1%
Chg 1 Year	-2.8%	-5.9%	+3.2%	+7.9%	-3.8%	+12.4%
Chg 5 Year	-2.9%	-2.6%	-0.2%	+2.4%	-7.3%	+10.4%

Source: TIS - Montana Department of Transportation

The National Highway Traffic Safety Administration (NHTSA) has moved away from placing emphasis on the percentage of fatalities that are alcohol related. NHTSA is now

emphasizing the alcohol related fatality rate when comparing states. This rate is acquired by dividing the number of alcohol related traffic fatalities by the number of hundred million miles traveled. This data is compiled by NHTSA through the use of the Fatal Analysis Reporting System (FARS) database.

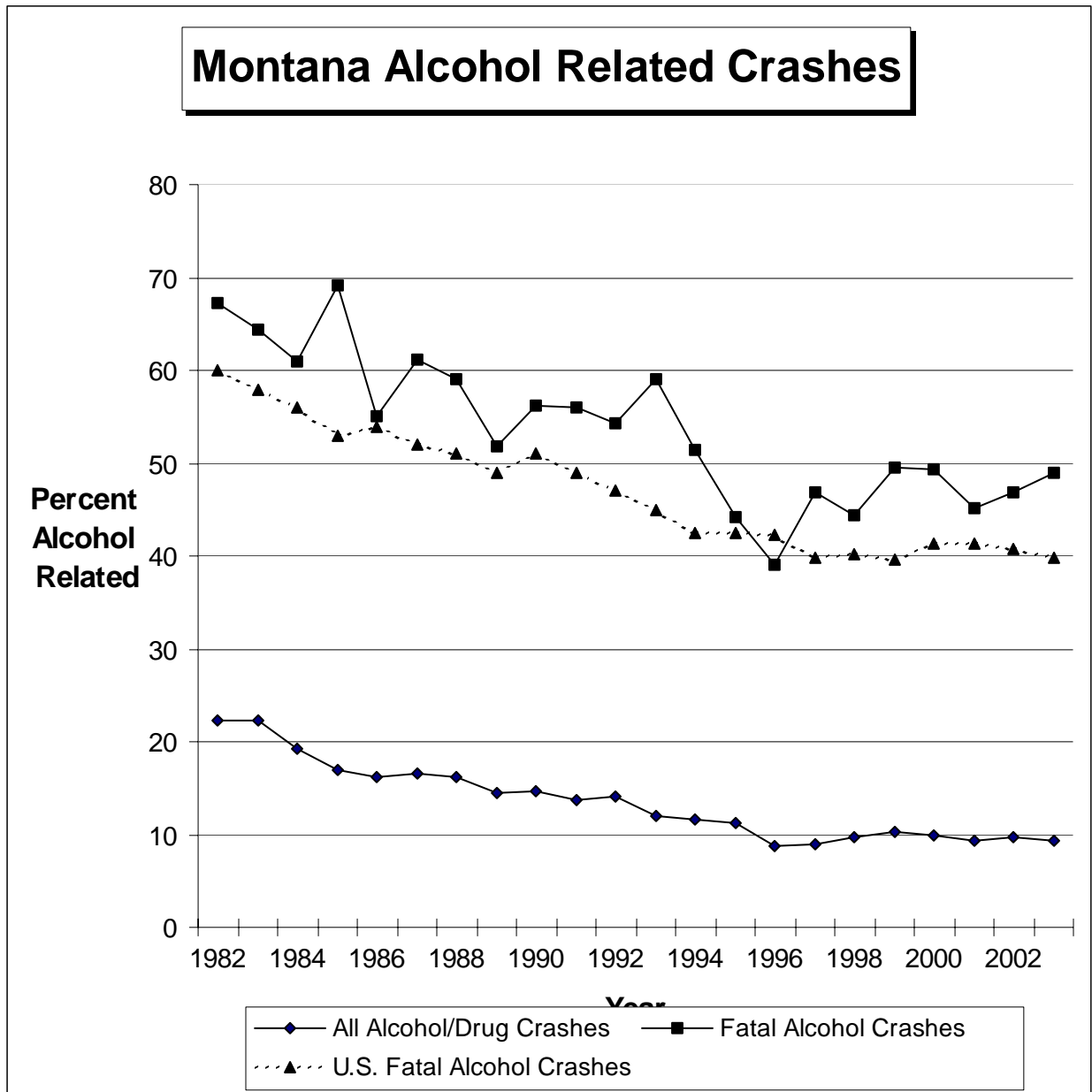
The FARS database waits for the results of BAC tests from the Montana Forensics Lab and hospitals. If no test is performed or received, the alcohol code is generated using a number of other crash factors through a mathematical procedure. The FARS data is the most accurate data available because it is based upon BAC results. Timeliness is a problem with the FARS data since results from NHTSA are not available for about a year. The data in Table 24 is based upon FARS data, while most of the data related to alcohol in this section is from the MHP database, which is based upon perceptions and evidence at the scene.

Table 24 Alcohol Fatalities & Fatality Rates					
Year	Total Fatalities	Alcohol Related Fatalities	Alcohol Related Percent	Total Fatality Rate	Alcohol Related Fatality Rate
1994	202	104	51.5	2.22	1.14
1995	215	95	44.2	2.29	1.01
1996	200	78	39.0	2.10	0.83
1997	265	124	46.8	2.84	1.32
1998	237	105	44.3	2.50	1.10
1999	220	109	49.5	2.25	1.11
2000	237	117	49.4	2.40	1.18
2001	230	104	45.2	2.30	1.04
2002	269	126	46.8	2.57	1.20
2003	262	128	48.9	2.40	1.17
Chg 1 Year	-2.6%	+1.6%	+4.5%	-6.6%	-2.5%
Chg 5 Year	+9.8%	+14.1%	+4.0%	-0.2%	+3.9%

Source: Fatal Analysis Reporting System

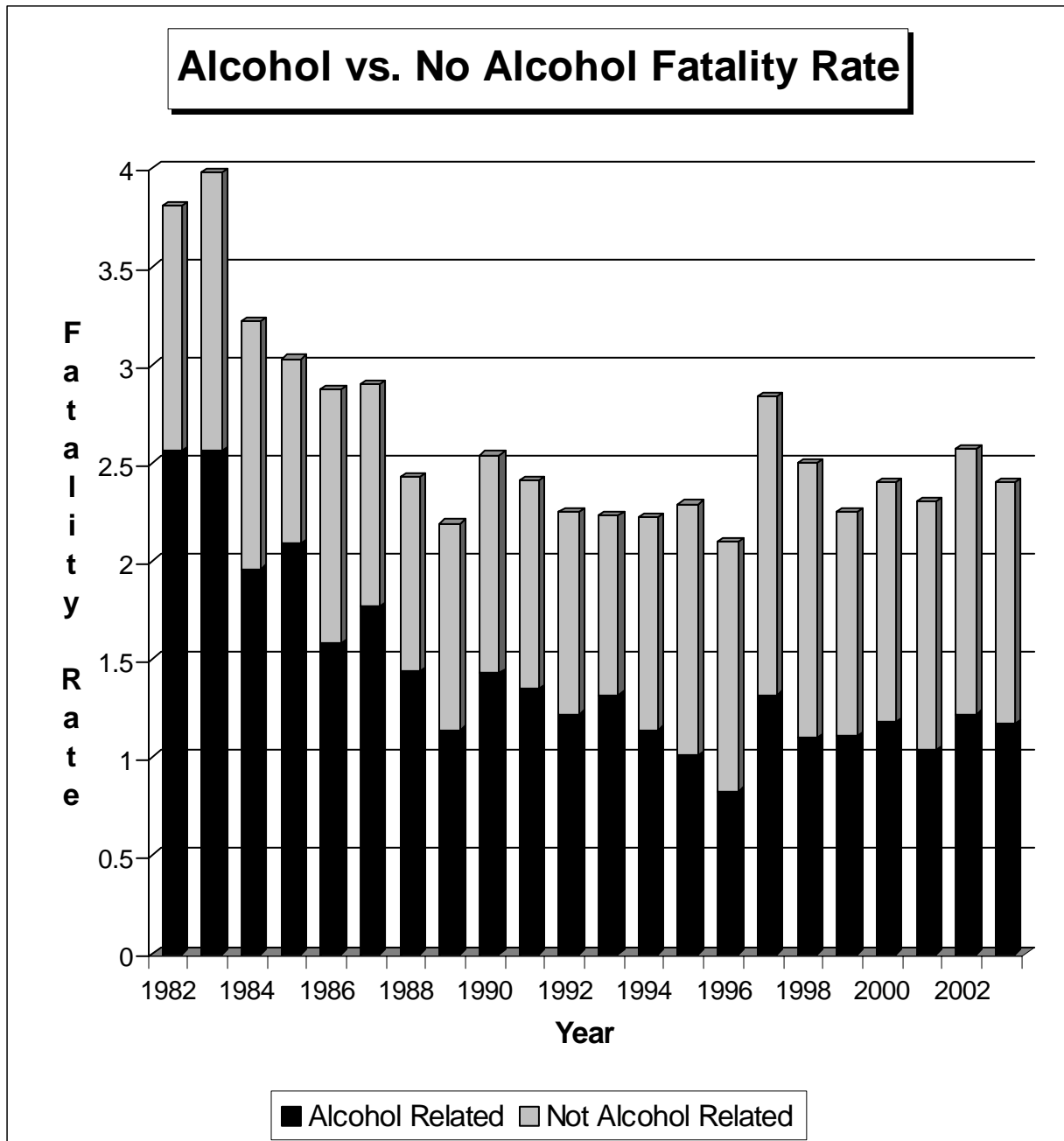
Figure 10 on the following page compares the Montana percentage of alcohol related crashes with the national percentage. The graph in Figure 11 displays alcohol and non-alcohol fatality rates in Montana since 1982.

Figure 10



Source: MDT and NHTSA

Figure 11



The Montana fatality rate during 1983 was 3.98 and the alcohol related fatality rate that year was 2.56. During the past twenty-one years, the alcohol rate has decreased more than 50%. The lowest rate was reached in 1996 and during the last ten years the rate has been nearly level. The current alcohol related fatality rate for the nation is 0.59. This is about half of the value in Montana. During 2003, Montana had the highest alcohol related fatality rate in the entire nation for the second straight year.

Next, we examine alcohol related crashes by county. The final column of Table 25 displays the percentage of crashes with alcohol/drug involvement in the county. There is a tendency for the larger urban counties to have a lower percentage of alcohol involvement in crashes. It is not known whether this implies counties with higher populations truly have less alcohol involvement because of alcohol education and related activities, or whether the large number of fender benders at intersections makes the percentage of alcohol involvement lower. It is felt that these lower percentages result from a combination of these and possibly other factors. In addition, there are some enforcement agencies, which are not as precise in determining alcohol related involvement.

Table 25  
**Alcohol/Drug Related Crashes by County (2004)**

County	Total Crashes	Fatal Crashes	Fatalities	Injuries	Percent Alcohol/Drug Crashes
Beaverhead	17	2	2	10	8.7%
Big Horn	18	5	5	29	10.3%
Blaine	12	2	2	9	18.2%
Broadwater	15	1	1	8	9.3%
Carbon	27	2	3	27	13.2%
Carter	1	0	0	3	7.1%
Cascade	153	4	4	116	7.0%
Chouteau	13	4	4	16	14.9%
Custer	18	1	1	5	6.4%
Daniels	4	0	0	4	9.1%
Dawson	18	0	0	21	7.4%
Deer Lodge	19	1	1	13	8.8%
Fallon	3	1	1	3	7.0%
Fergus	22	1	1	15	10.2%
Flathead	221	5	6	171	11.2%
Gallatin	146	5	5	100	8.0%
Garfield	2	0	0	3	11.1%
Glacier	36	7	10	64	25.0%
Golden Valley	0	0	0	0	0.0%
Granite	17	1	1	18	14.0%
Hill	46	1	2	27	12.0%
Jefferson	34	2	2	36	8.9%
Judith Basin	5	0	0	1	10.0%
Lake	85	8	9	112	15.0%
Lewis & Clark	124	2	2	78	7.0%
Liberty	2	0	0	1	14.3%
Lincoln	32	0	0	39	12.4%
Madison	17	2	2	23	10.4%
McCone	3	1	1	5	13.6%
Meagher	5	1	1	4	14.7%
Mineral	15	0	0	6	5.8%
Missoula	269	4	4	186	10.6%
Musselshell	9	0	0	4	12.2%
Park	45	3	3	36	10.4%
Petroleum	2	0	0	2	7.7%
Phillips	11	0	0	14	13.6%
Pondera	13	2	2	11	13.3%

Table 25 (continued)					
<b>Alcohol/Drug Related Crashes by County</b>					
County	Total Crashes	Fatal Crashes	Fatalities	Injuries	Percent Alcohol/Drug Related Crashes
Powder River	5	1	1	0	10.9%
Powell	18	1	1	14	8.1%
Prairie	3	0	0	3	6.8%
Ravalli	59	2	2	45	7.9%
Richland	12	2	2	20	8.6%
Roosevelt	22	0	0	38	22.2%
Rosebud	20	4	4	25	15.7%
Sanders	20	3	3	24	10.6%
Sheridan	8	1	1	8	13.6%
Silver Bow	41	1	1	28	6.1%
Stillwater	37	3	3	32	16.7%
Sweet Grass	4	0	0	7	3.8%
Teton	14	0	0	11	13.1%
Toole	6	0	0	5	7.9%
Treasure	2	0	0	6	7.1%
Valley	25	2	4	19	17.4%
Wheatland	4	0	0	3	9.3%
Wibaux	3	1	1	2	10.3%
Yellowstone	331	9	9	257	9.6%
Total	2,113	98	107	1,767	9.7%

Source: TIS -- Montana Department of Transportation

Complete DUI arrest data is not summarized by any agency in Montana. Not all arrests result in a conviction for DUI, since some are dismissed or not prosecuted and others are found not guilty. In lieu of arrest data, we now present conviction data, which is gathered by the Department of Justice. Rates per 1000 population and per million vehicle miles traveled are included in Table 26. Total Convictions were somewhat lower during 2004 than the previous year.

Table 26 DUI Convictions			
Year	DUI Convictions	Convictions per 1000 Population	Convictions per Million VMT
1995	6697	7.7	0.71
1996	6273	7.2	0.67
1997	6217	7.1	0.67
1998	5973	6.8	0.63
1999	6117	6.9	0.63
2000	5787	6.5	0.59
2001	5972	6.6	0.60
2002	5432	6.0	0.53
2003	5343	5.9	0.50
2004	4970	5.4	0.44
Chg 1 Year	-7.0%	-8.5%	-12.0%
Chg 5 Year	-13.3%	-15.4%	-22.8%

Source: TIS and Traffic Data Collection - Montana Department of Transportation

Data is presented for convictions by county and arresting agency in Table 27. This data is useful for local agencies and community leaders for the tracking of their local efforts. Of the convictions listed on a county summary during 2004, police departments were responsible for 2,437, which accounted for 50% of the total. Sheriff's Departments and the Highway Patrol each accounted for 25% of the total.

Table 27 Montana DUI Convictions by Arresting Agency – 2004										
County	MHP	Sheriff	Police	Total		County	MHP	Sheriff	Police	Total
Beaverhead	2	4	20	26		Meagher	0	4	1	5
Big Horn	51	61	0	112		Mineral	6	16	0	22
Blaine	9	16	3	28		Missoula	154	120	313	587
Broadwater	35	34	0	69		Musselshell	6	11	0	17
Carbon	18	15	25	58		Park	8	21	53	82
Carter	0	0	0	0		Petroleum	0	1	0	1
Cascade	70	62	275	407		Phillips	2	4	0	6
Chouteau	7	2	1	10		Pondera	8	2	6	16
Custer	7	4	51	62		Powder River	1	2	1	4
Daniels	3	0	0	3		Powell	7	15	0	22
Dawson	13	7	47	67		Prairie	3	3	0	6
Deer Lodge	17	20	0	37		Ravalli	33	69	67	169
Fallon	1	0	3	4		Richland	5	5	20	30
Fergus	7	4	20	31		Roosevelt	2	0	2	*10
Flathead	96	45	220	361		Rosebud	14	37	0	51
Gallatin	95	135	399	629		Sanders	12	6	14	32
Garfield	1	3	0	4		Sheridan	1	12	1	14
Glacier	15	8	15	38		Silver Bow	51	87	0	138
Golden Valley	0	0	0	0		Stillwater	8	1	8	17
Granite	4	6	1	11		Sweet Grass	7	13	0	20
Hill	36	33	83	152		Teton	4	7	1	12
Jefferson	30	12	16	58		Toole	3	4	1	8
Judith Basin	1	0	0	1		Treasure	1	3	0	4
Lake	57	38	42	*183		Valley	6	5	17	28
Lewis & Clark	66	83	233	382		Wheatland	8	5	0	13
Liberty	0	3	0	3		Wibaux	0	0	0	0
Lincoln	11	47	32	90		Yellowstone	228	129	442	799
Madison	16	7	1	24		Unknown	0	2	3	2
McCone	2	0	0	2		Total	1248	1233	2437	4970

Source: Department of Justice

\* Totals do not add up because Tribal and BIA Enforcement is not shown

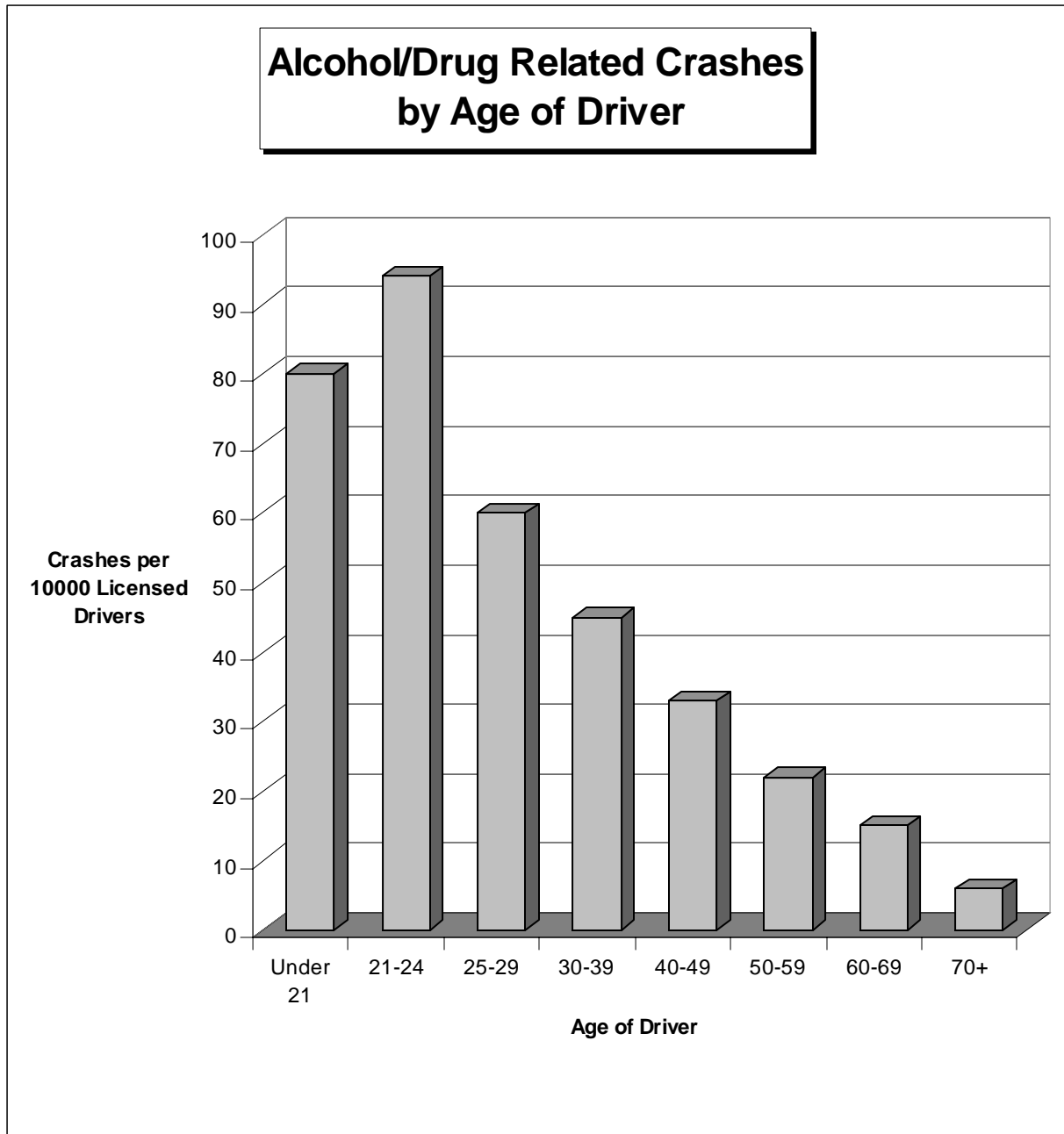
Table 28 examines the age of the drivers that are involved in alcohol related traffic crashes. Crash rates per ten thousand licensed drivers is calculated. This information can help those in the traffic safety community make decisions on targeting specific age groups concerning the drinking and driving problem. It should be noted that not all drivers involved in these alcohol crashes were drinking. While most alcohol crashes are single car crashes, when there are multiple vehicles involved (792 crashes), some of the drivers may have been not drinking. Therefore, a small percentage of the drivers in this table may not have been drinking.

<p>Table 28</p> <p><b>Alcohol Related Crashes by Age of Driver</b></p> <p><b>(2004 Crash Data)</b></p>					
Age	Licensed Drivers (2004)	Drivers in Alcohol Crashes	Alcohol Crashes per 10,000 Licenses	Drivers in Fatal Crashes	Fatal Crashes per 10,000 Licenses
Under 18	24,366	147	60	3	1.2
18-20	37,672	352	93	14	3.7
Under 21	62,038	499	80	17	2.7
21-24	48,595	459	94	14	2.9
25-29	59,924	361	60	18	3.0
30-39	109,599	497	45	23	2.1
40-49	144,479	478	33	23	1.6
50-59	133,668	296	22	11	0.8
60-69	81,943	121	15	8	1.0
70+	72,734	47	6	1	0.1

Source: TIS – Montana Department of Transportation, FARS – Montana Department of Transportation, Motor Vehicle Division – Department of Justice

The highest involved age was the 21-24 year group. For all alcohol related crashes the 18-20 age group is a very close second. Figure 12 on the next page shows these rates by age. It is interesting to compare this chart with Figure 19 on page 75, which shows rates by age for all crashes.

Figure 12



The table below examines “drivers” under age 21 involved in crashes. Those drivers involved in all crashes and in alcohol/drug related crashes are compared. It should be emphasized that the counts are for drivers of age 20 and under (not crashes). There could be a few instances where the young driver had not been drinking, while another older driver involved in the crash had been drinking. Fortunately, most alcohol/drug related crashes involve only one vehicle.

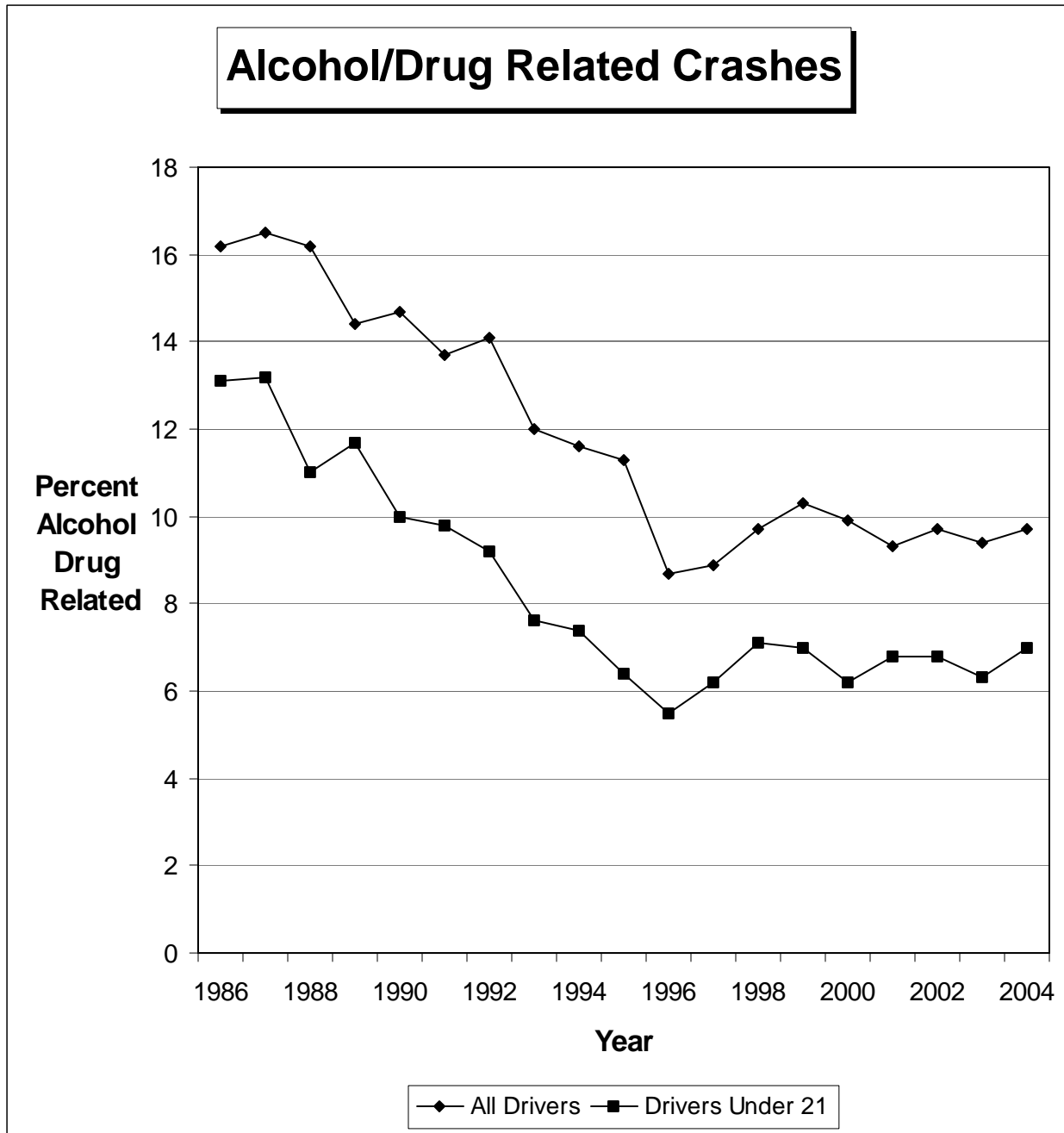
Underage drivers have a lower use of involvement in alcohol/drug related crashes than the entire population of drivers. When young drivers are involved in crashes, 7.0% of those crashes involve alcohol and/or drugs, while the rate is 9.7% for all drivers regardless of age.

Table 29 Drivers Under 21 – Alcohol/Drug Related Crashes						
Year	Drivers in All Crashes			Drivers In Fatal Crashes		
	Alcohol Related	All	Percent of All	Alcohol Related	All	Percent of All
1995	492	7,672	6.4%	14	38	36.8%
1996	449	8,196	5.5%	16	46	34.8%
1997	491	7,958	6.2%	19	47	40.4%
1998	534	7,503	7.1%	14	44	31.8%
1999	497	7,064	7.0%	23	55	41.8%
2000	497	7,969	6.2%	13	49	26.5%
2001	531	7,781	6.8%	13	40	32.5%
2002	558	8,224	6.8%	16	47	34.0%
2003	473	7,551	6.3%	18	57	31.6%
2004	499	7,090	7.0%	17	39	43.6%
Chg 1 Yr	+5.5%	-6.1%	+11.1%	-5.5%	-31.6%	+38.0%
Chg 5 Yr	-2.4%	-8.1%	+5.7%	+2.4%	-21.4%	+31.0%

Source: TIS – Montana Department of Transportation

Figure 13 on the following page examines these trends over time. A general decline for percentage of alcohol/drug related crashes occurred until 1995. From 1996 until 2004, this percentage has leveled.

Figure 13





## **2. Occupant Protection**

Montana's seat belt law became effective on October 1, 1987, without penalties. Penalties became effective on January 1, 1988. The law was written for secondary law enforcement and covered all seating positions within vehicles. Although, there must be another reason for stopping a vehicle, the law has been very effective. Montana is one of only fourteen states where all seating positions are covered. Only three standard enforcement states cover all positions. A bill for standard enforcement had been introduced to the Montana legislature during two sessions and had not made it out of committee. A bill was introduced during the 2005 legislative session. It passed the Senate and was within nine votes of passing the House. Passage of standard enforcement will usually raise seat belt usage from 8 to 12 percentage points.

Montana's restraint usage rates are shown on the next page in Table 30. These rates are determined from an approved NHTSA observational survey. The survey is conducted each year during June at 120 locations statewide.

Montana restraint usage increased from 16.8% in 1984 to 33.3% in October 1987 before the mandatory seat belt bill became law. This gain was acquired by conducting seat belt incentive give away campaigns in many of Montana's cities during this period along with public information campaigns. When the enforcement of the law began, usage jumped to 56% and has gradually increased since that time. The current level of usage is 80.0% down slightly from 2004. This decline is not a statistically significant decrease and may result from statistical variation only.

Usage is usually two to three percentage points higher in summer than in winter on Montana roadways. This cycle is likely caused by a greater percentage of short trips during the winter. Tourists are more prevalent in the summer accounting for a larger percentage of long trips and thereby higher usage. In addition, families traveling together tend to have higher usage than when there is just one person in the vehicle. A higher percentage of vehicles contain more than one person during the summer in Montana.

The usage rates on all roadway strata types decreased during 2005. The strata types with the lowest usage are "city" and "other" (county and secondary). However, the chance of a crash is highest on these roads, and serious injury is still quite possible. Continued effort must be placed on the populations that are the primary users of these roadways.

Table 30  
**Seat Belt Usage Rates**

Year	Interstate	Primary	City	Other	All Roads
1984	24.7%	20.7%	8.4%	8.4%	16.8%
1985	30.6%	25.8%	9.7%	12.2%	21.7%
1986	43.4%	33.9%	14.8%	17.1%	29.5%
1987	54.8%	44.0%	24.0%	27.0%	39.7%
1988	75.8%	64.7%	41.2%	45.6%	59.5%
1989	78.6%	69.3%	40.6%	47.5%	61.8%
1990	79.1%	70.5%	40.2%	48.4%	62.6%
1991	80.9%	72.8%	41.4%	49.3%	64.5%
1992	83.1%	75.3%	47.8%	53.7%	68.0%
1993	84.2%	75.9%	49.6%	56.2%	69.2%
1994	84.7%	75.4%	51.1%	56.4%	69.6%
1995	86.4%	75.0%	51.3%	57.5%	70.1%
1996	86.2%	75.5%	51.8%	61.0%	70.8%
1997	87.9%	79.3%	52.4%	60.2%	72.6%
1998	88.4%	78.2%	54.0%	63.5%	73.1%
1999	89.1%	78.9%	55.3%	65.0%	74.0%
2000	91.3%	79.5%	58.3%	65.5%	75.6%
2001	92.5%	79.6%	59.7%	65.7%	76.3%
2002	94.3%	82.5%	60.8%	69.7%	78.4%
2003	93.6%	82.3%	65.1%	71.7%	79.5%
2004	93.0%	83.3%	67.7%	73.1%	80.9%
2005	92.6%	82.4%	66.9%	72.6%	80.0%
Chg 1 Year	-0.4%	-1.1%	-1.2%	-0.7%	-1.1%
Chg 5 Year	-0.4%	+1.2%	+7.3%	+5.0%	+2.4%

Source: State Highway Traffic Safety Office – Montana Department of Transportation

On the following page, Figure 14 shows a graph of Montana's seat belt usage since 1983.

Figure 14

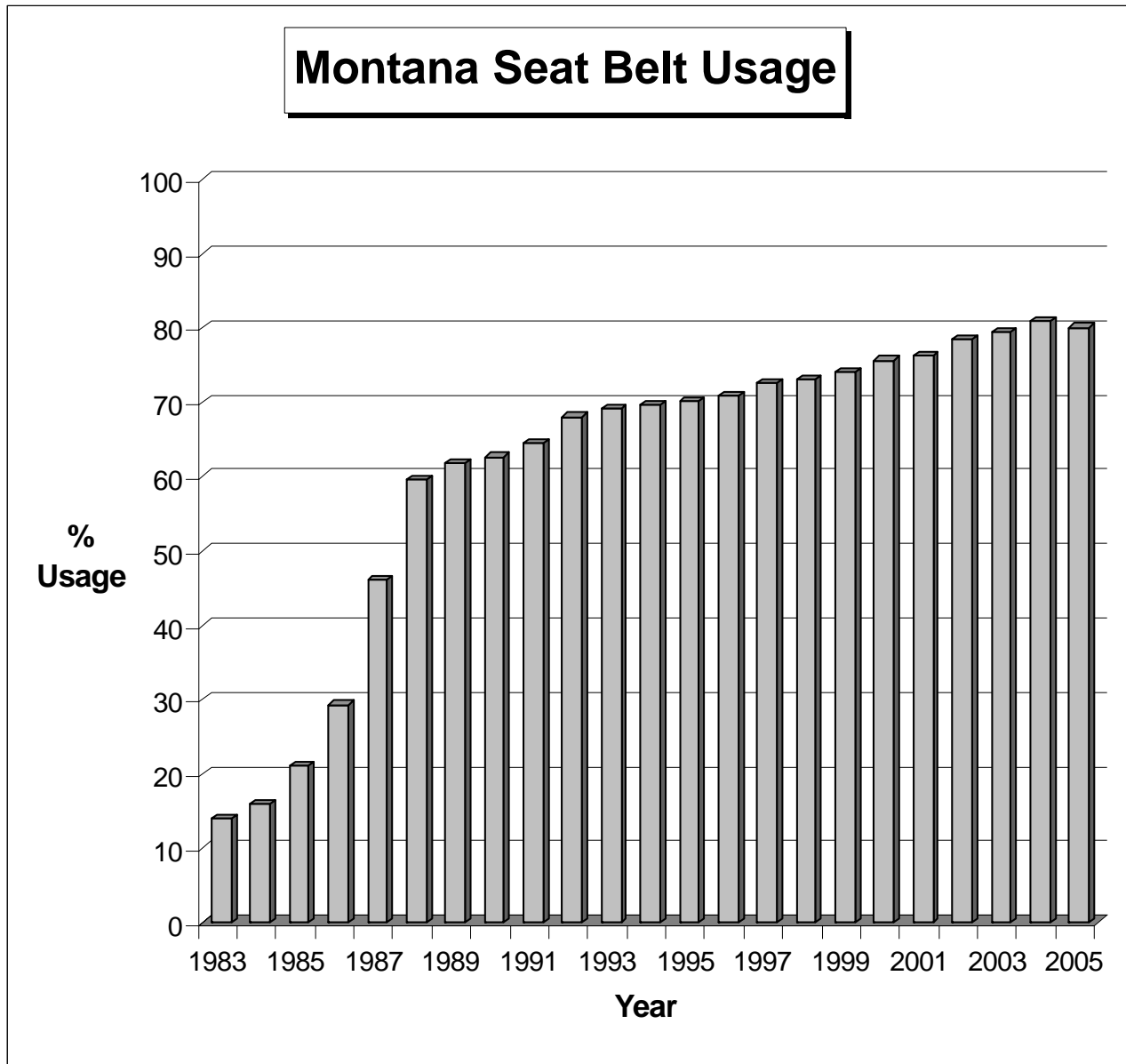


Table 31 on the following page shows seat belt convictions by arresting agency. Over 15,400 convictions resulted from seat belt citations issued during 2004. This is slightly less than the 16,045 convictions, which resulted from 2003 citations.

The Montana Highway Patrol wrote about 75% of the convictions statewide, which was a decrease in 2004 from 2003. Police departments accounted for over 18% of statewide citations, up somewhat from 2003. Sheriff departments wrote more citations that resulted in convictions than any previous year. This accounted for about 6% of the statewide total. Even larger increases in local enforcement may be required in order to encourage higher usage on local roads and city streets.

Montana restraint usage has been growing slowly over the past few years. Most smaller local enforcement agencies, do not write significant numbers of seat belt citations. However Havre, Columbia Falls, Laurel, Miles City, Sidney, Glendive, Dillon, Polson and Baker do write a relatively large amount of citations for their size of community.

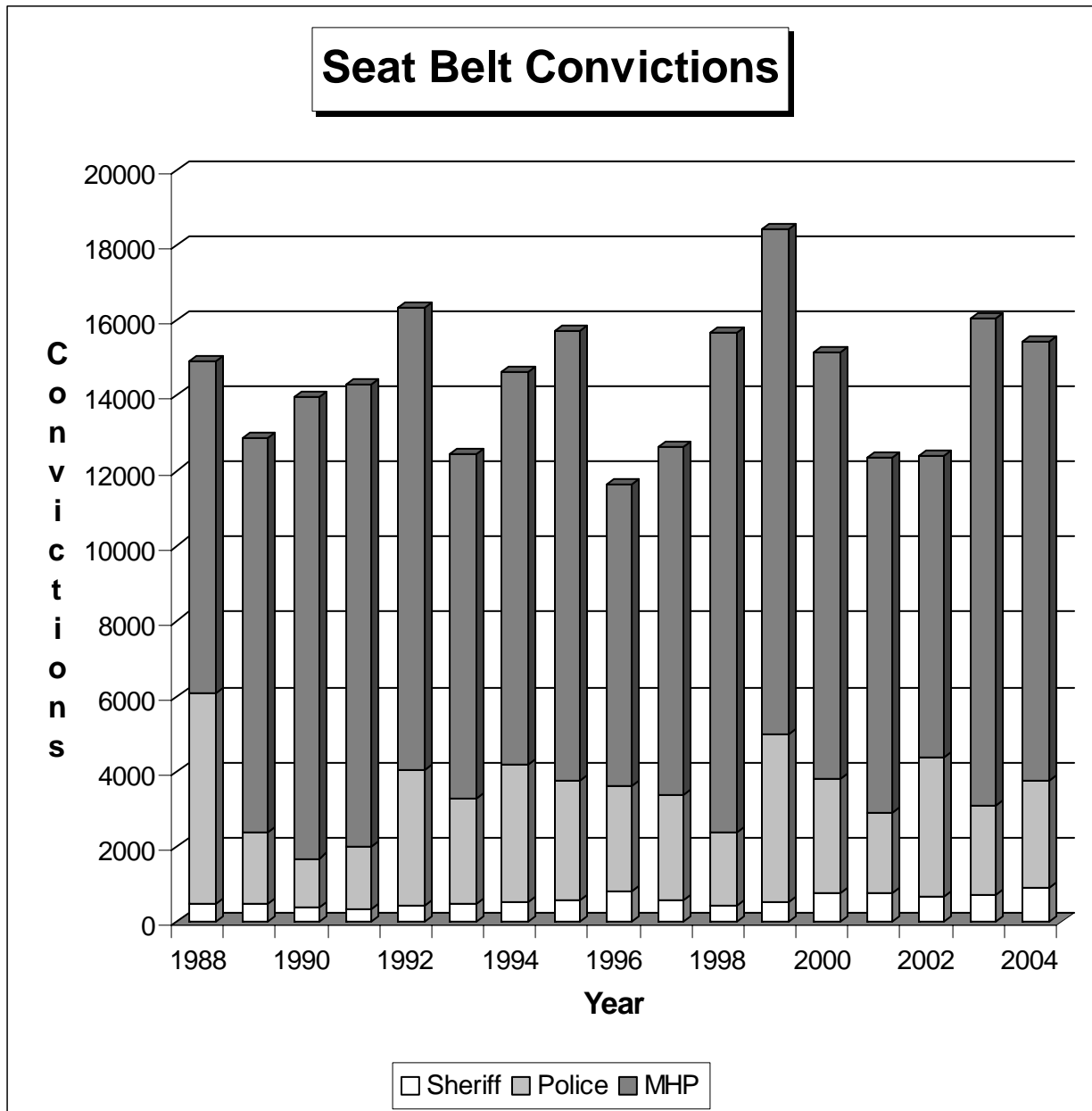
The number of convictions resulting from citations written by sheriff departments has increased during the past fifteen years. In the past, Missoula and Silver Bow counties accounted for over 90% of these convictions. Several additional counties are beginning to write some seat belt citations, so that Missoula and Silver Bow only accounted for 74% of the convictions during 2004. The Bureau of Indian Affairs and/or Tribal Police issue very few citations that result in convictions reported to the Montana Department of Justice. Restraint usage on most of Montana's reservations continues to be quite low.

Table 31 Seat Belt Citation Convictions by Issuing Agency					
Year	Police	Sheriff	MHP	Reservation Law Enf.	Total
1988	5,612	478	8,818	0	14,908
1989	1,907	483	10,463	0	12,853
1990	1,316	379	12,277	0	13,972
1991	1,658	355	12,269	15	14,297
1992	3,611	453	12,283	62	16,409
1993	2,799	474	9,192	106	12,571
1994	3,654	546	10,443	70	14,713
1995	3,173	585	11,981	38	15,777
1996	2,784	816	8,053	5	11,658
1997	2,798	567	9,289	11	12,665
1998	1,911	459	13,285	75	15,730
1999	4,451	521	13,454	32	18,458
2000	3,025	792	11,329	30	15,176
2001	2,139	783	9,449	9	12,380
2002	3,674	698	8,007	11	12,390
2003	2,397	719	12,927	2	16,045
2004	2,869	912	11,674	3	15,458
Chg 1 Year	+19.7%	+26.8%	-9.7%	+50.0%	-3.7%
Chg 5 Year	-8.5%	+29.8%	+5.8%	-82.1%	+3.8%

Source: TIS – Montana Department of Transportation

Figure 15 on the next page shows convictions during the seventeen years of the law.

Figure 15



Restraint usage acquired from crash reports is analyzed next. Usage as reported by the investigating officer, is quite accurate in the case of fatalities. Even if the person is no longer in the vehicle, physical evidence makes it easy to correctly code this information. For persons injured in crashes, accurate coding of this field becomes more difficult. Generally, the investigating officer must rely on the honesty of the occupants when acquiring this data. The following table displays restraint use for occupant fatalities. Restraint usage is much lower for fatalities than for the overall population. There are thought to be two reasons for this. The first is that people that drive in a manner that tends to result in fatalities, are often under the influence of alcohol and/or drugs, are speeding or are involved in other hazardous driving. It has been shown in studies that these people tend to use restraints much less often—risk takers tend to be risk takers in many life choices. The second factor is that the occupants in crashes without belts are much more likely to die than those occupants wearing belts.

Table 32 Restraint Use for Occupant Fatalities in Crashes				
Year	Not Belted	Belted	Total Occupants	Percent Belted
1996	130	45	175	25.7%
1997	178	59	237	24.9%
1998	153	56	209	26.8%
1999	156	39	195	20.0%
2000	144	60	204	29.4%
2001	153	56	209	26.8%
2002	176	54	230	23.5%
2003	167	65	232	28.0%
2004	143	48	191	25.1%
Chg 1 Year	-14.4%	-26.2%	-17.7%	-10.4%
Chg 5 Year	-10.2%	-12.4%	-10.7%	-1.7%

Source: Fatal Analysis Reporting System (FARS)

Note that the total fatalities shown in this table is not the same as in other tables throughout this paper. This table only shows occupant fatalities and does not include, motorcyclists, pedestrians and bicyclists.

Next is presented seat belt usage by vehicle type for occupant fatalities within Montana. Data is shown for crashes occurring during 2002 through 2004. Usage was much lower for pickups than for other types of vehicles.

Table 33 Seat Belt Usage of fatalities by Vehicle Type (2002-2004)	
Vehicle Type	Usage
Pickups	16.9%
Passenger Cars	29.7%
SUV's	30.5%
Minivans	37.5%
Vans	50.0%

Source: Fatal Analysis Reporting System (FARS)

In the Table 34, it is shown that seat belt use is much lower (nearly half) in crashes that are alcohol related than for those without alcohol involvement. Use in crashes without alcohol and drug involvement is 33.0% compared to 17.5% in those with alcohol and drugs.

Table 34 Seat Belt Usage versus Alcohol Involvement Fatal Crashes – 2004					
		Seat Belt Used	Seat Belt Not Used	Unknown	Total
<b>Alcohol Related</b>	Fatalities	17	78	2	97
	Percent	17.5%	80.4%	2.1%	100.0%
<b>Not Alcohol Related</b>	Fatalities	31	57	6	94
	Percent	33.0%	60.6%	6.4%	100.0%
<b>Total</b>	Fatalities	48	135	191	191

Source: Fatal Analysis Reporting System (FARS)

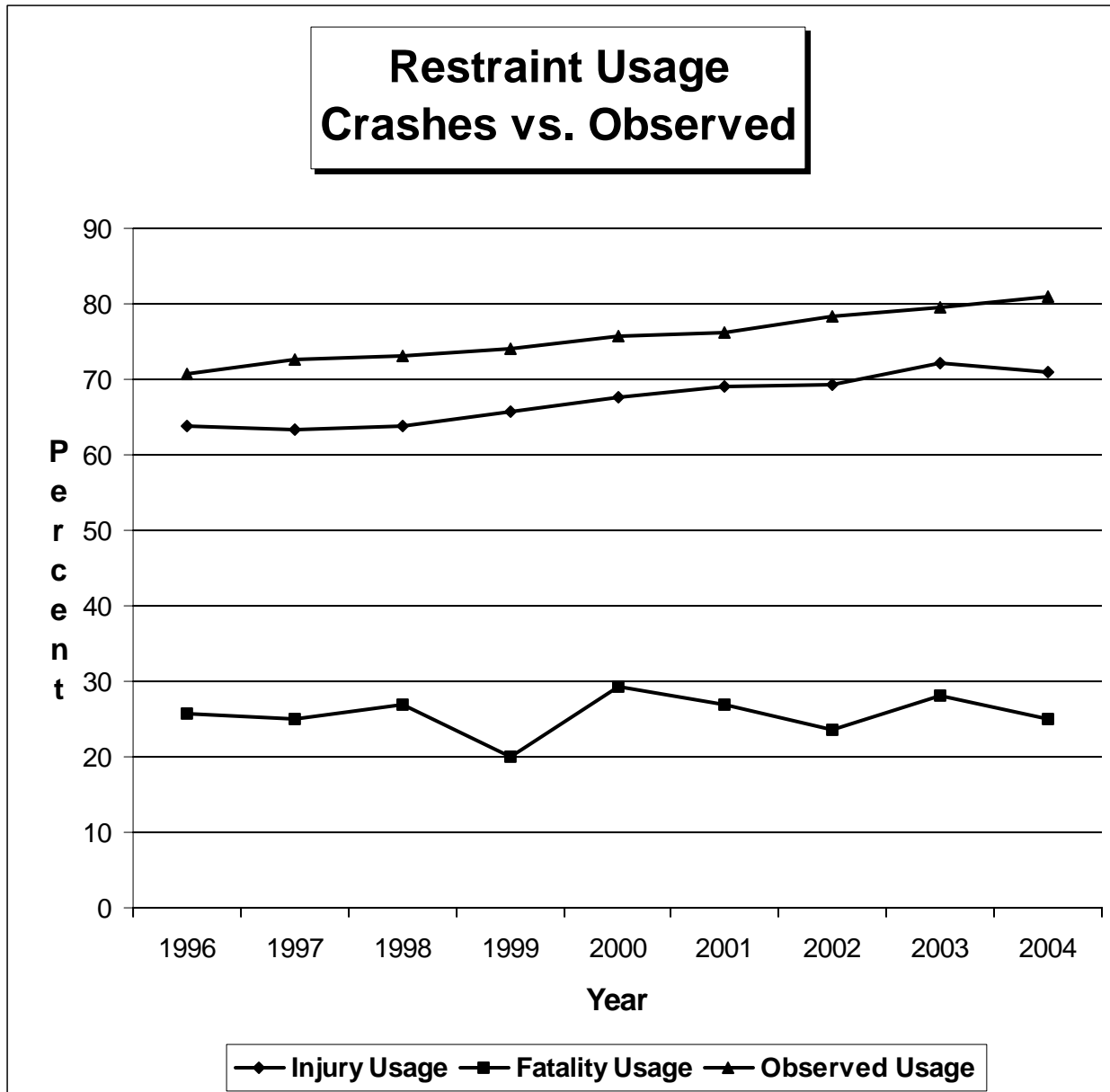
The next table shows restraint usage for injured occupants in crashes. The usage in this table is much higher than that reported in the fatality table. This is due to three things: 1) occupants in injury crashes are not as likely to be involved in speeding, driving under the influence and hazardous driving actions and also tend to wear restraints more often, 2) Some of these occupants are not telling the truth about restraint usage and 3) survivors often survive simply because they were belted. Occupant usage for uninjured occupants is even higher and is usually above the observed average statewide usage.

Table 35 <b>Restraint Use for Occupant Injuries in Crashes</b>				
Year	Not Belted	Belted	Total Occupants	Percent Belted
1996	3,202	5,628	8,830	63.7%
1997	3,164	5,449	8,613	63.3%
1998	2,954	5,195	8,149	63.8%
1999	2,899	5,566	8,465	65.8%
2000	2,814	5,910	8,724	67.7%
2001	2,203	4,929	7,132	69.1%
2002	2,462	5,561	8,023	69.3%
2003	2,182	5,651	7,833	72.1%
2004	2,264	5,551	7,815	71.0%
Chg 1 Year	+3.8%	-1.8%	-0.2%	-1.5%
Chg 5 Year	-9.9%	+0.5%	-2.7%	+3.2%

Source: TIS - Montana Department of Transportation

This usage has been increasing during the past ten years. The amount of increase seems to be similar to the state usage survey increases. Figure 16 on the following page shows usage from the previous two tables along with annual observed usage in Montana.

Figure 16



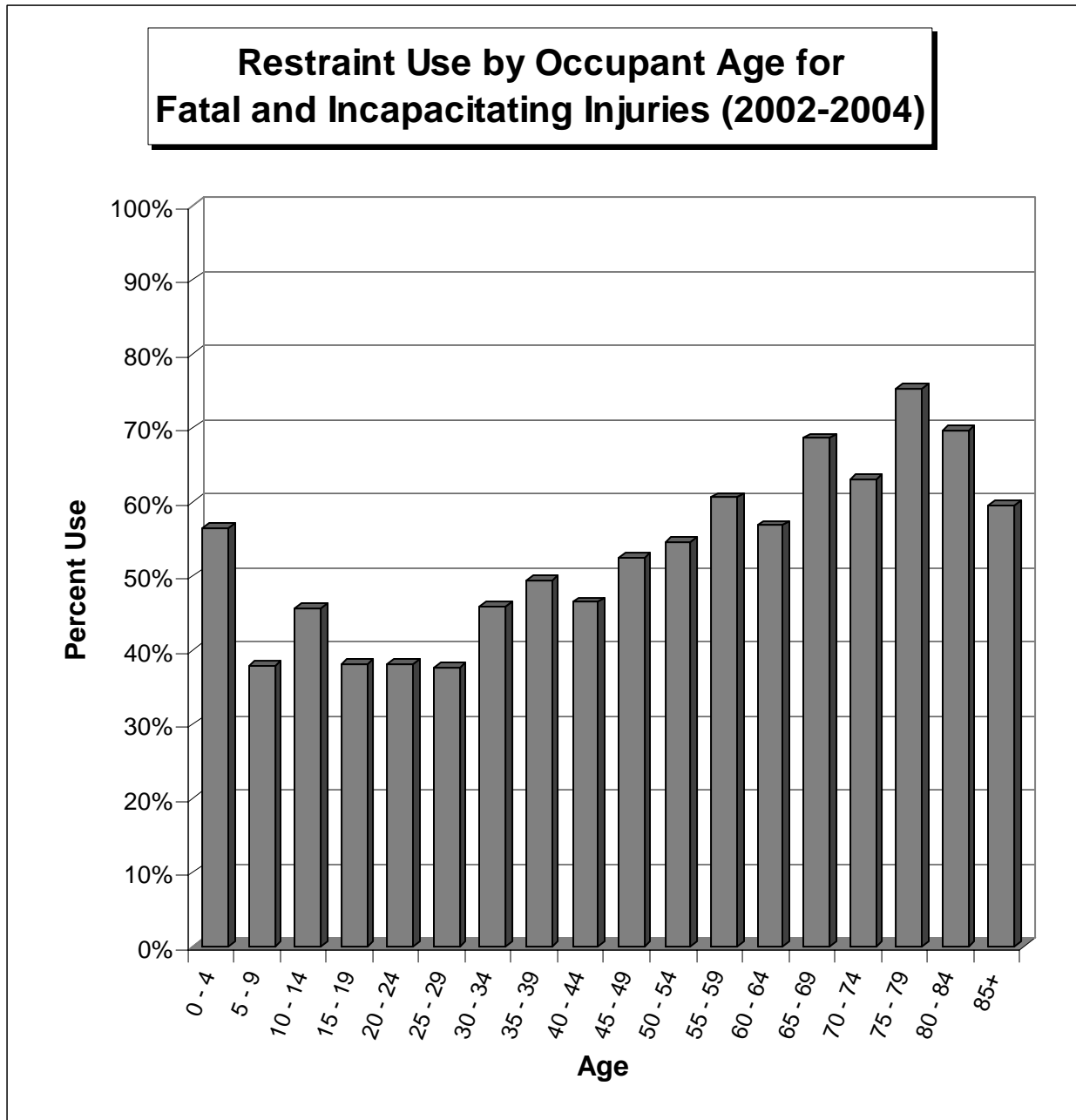
Fatalities and injuries to vehicle occupants ages four and under are of interest in relation to child safety and child restraint usage. The following table displays the history of injury data over the last ten years. Injuries generally increased from 1990 to 1999, and generally decreased from 2000 to 2004. During the early 1970's, the fatalities for this age group were usually between five and ten. When child restraints became more common, these numbers dropped. Rental programs and publicity during the eighties helped reduce injuries to a level of 154 in 1991.

Table 36 <b>Occupant Injuries – Age Four and Under</b>		
Year	Fatalities	Injuries
1995	3	170
1996	6	209
1997	6	228
1998	3	283
1999	1	288
2000	4	249
2001	1	216
2002	1	226
2003	4	232
2004	1	214
Change 1 Year	-75.0%	-7.8%
Change 5 Year	-54.5%	-11.6%

Source: TIS - Montana Department of Transportation

Restraint usage by age cannot be determined from the observational survey. We can analyze belt use data in crashes and acquire a general idea of how usage in Montana varies by age. In order to show significance, crash information for the last three years was analyzed (2002 – 2004). Usage is shown on the following page in Figure 17.

Figure 17



### 3. Hazardous Actions, Speed and License Compliance

#### a. Speed and Driver Contributing Circumstances

The 1999 legislature passed a speed limit bill that became law on Memorial Day weekend of 1999. The limit on the interstate for passenger vehicles was set at 75, while the limit on most other non-interstate routes was set at 70 mile per hour. Night speeds are 75 on the interstate and 65 on non-interstate routes. Trucks have limits that are slower on some roads.

Over the past four years, there has been an increase of 85<sup>th</sup> percentile 24-hour speeds on non-interstate speed monitoring sites according to the Data and Statistics Bureau of the Montana Department of Transportation. While the sample sites used do not make up a valid statistical sample, they certainly tend to indicate a possible trend. The speeds for each of the first three quarters of 2004 were from 4.16, 4.95 and 4.35 miles per hour faster than during the same quarters in 2000. The rural interstate 85<sup>th</sup> percentile speeds are not showing this same increase during this period, but are increasing slightly.

Figure 18

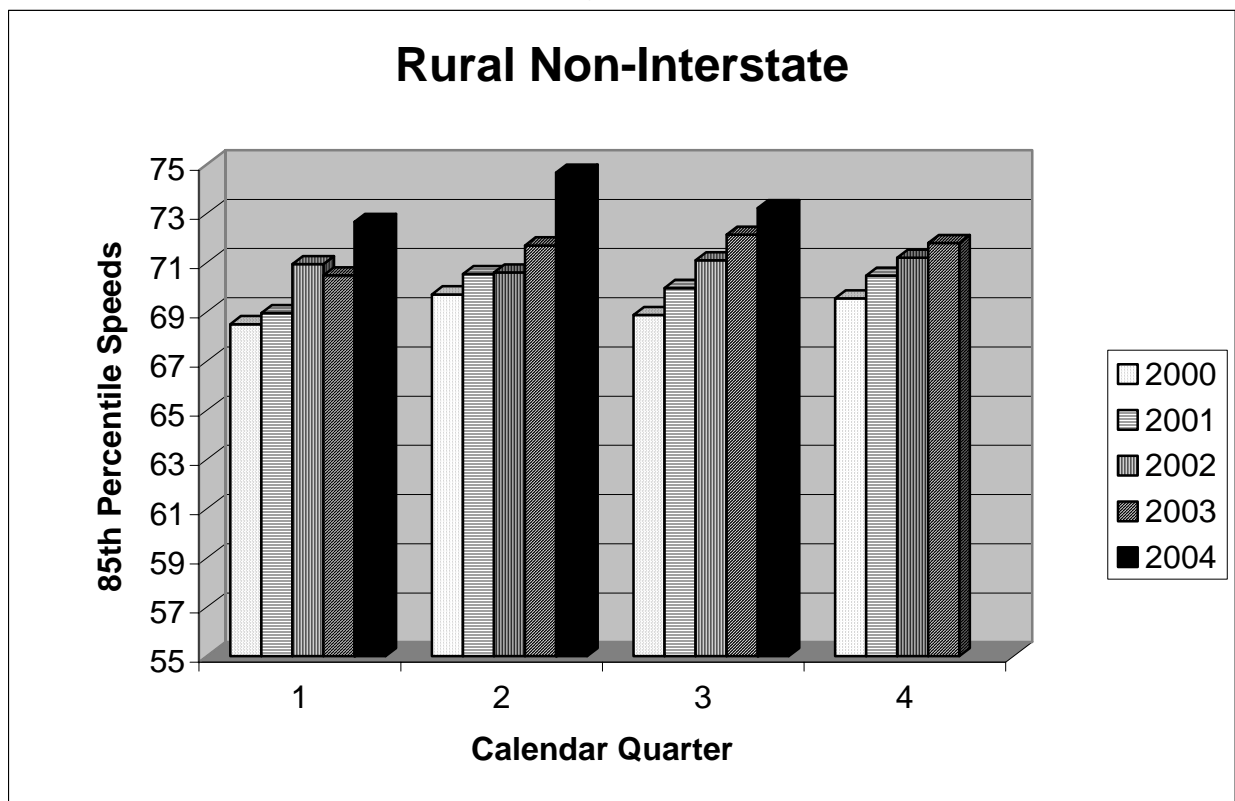
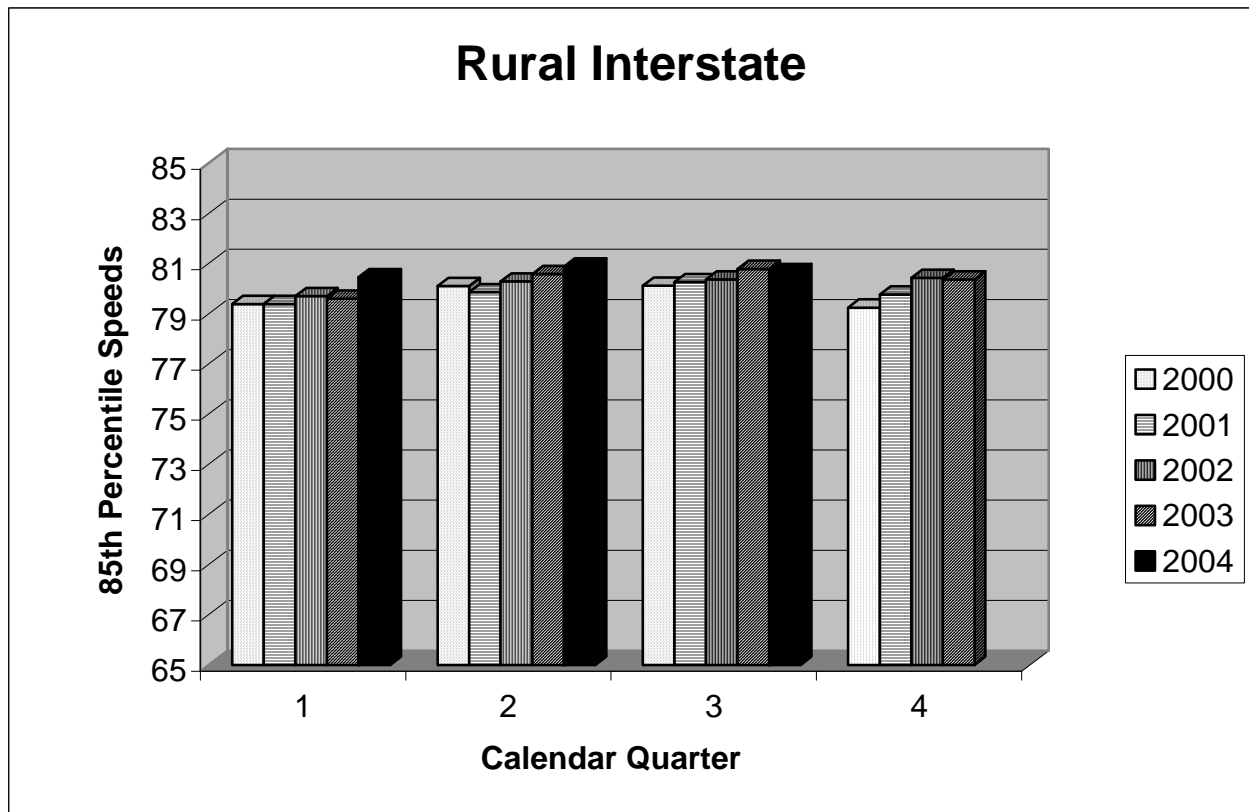


Figure 19



The Highway Patrol believes that patrol levels have been nearly maintained on the interstate. But they feel that presence of patrolman on many non-interstate routes has not kept pace because of personnel shortages. The Highway Patrol has no more uniformed officers in 2005 than during 1970. This trend was recently reversed when the 2005 legislature passed a bill, which will allow the Highway Patrol to hire additional patrolman for each of the next several years.

There is a correlation between alcohol related crashes and exceeding the speed limit in fatal crashes as shown in the table below. Vehicles were speeding in 58.5% of alcohol related crashes and in only 31.7% of the non-alcohol related crashes.

<p>Table 37</p> <p><b>Speed versus Alcohol Involvement</b></p> <p><b>Fatal Crashes - 2004</b></p>				
		Speeding	Not Speeding	Total
Alcohol Related	# %	62 58.5%	44 41.5%	106 100.0%
Not Alcohol Related	# %	39 31.7%	84 68.3%	123 100.0%
Total		101	128	229

Source: Fatal Analysis Reporting System (FARS)

Characteristics recorded about the driver and his or her actions leading up to crashes are now examined. The most common contributing circumstances involving drivers in crashes, as determined by the investigating officer, are summarized in Table 38. Careless Driving has been generally higher over the last few years. During 1994, crash investigators felt that careless driving was one of the contributors to the crash in 3,813 instances. During each of the last five years, this was felt to be a contributor in over 5,300 instances. This trend requires continued observation and may be tied in with the change in speed limits. The other contributors do not seem to be showing significant trends.

Inattentive Driving is the major contributing circumstance in crashes. It was a contributor with 7,137 of the drivers in crashes. The other contributing circumstances are direct driving actions during driving or the use of alcohol and/or drugs. Inattentive driving is an overall category for not concentrating on the task of driving and is very subjective by the investigating officer. It does seem to be increasing in Montana, as drivers are often not concentrating on driving. It is apparent that drivers are doing other things in their car besides driving, such as eating, smoking, talking on cell phones, adjusting controls, inserting tapes or CD's, looking at GPS mapping, and many other activities. There are more possible distractions in our busy electronic world and many of these seem to be taking a priority over actually operating a car. Cell phone use was admitted to as a contributor in 78 crashes and was likely a distraction in many more.

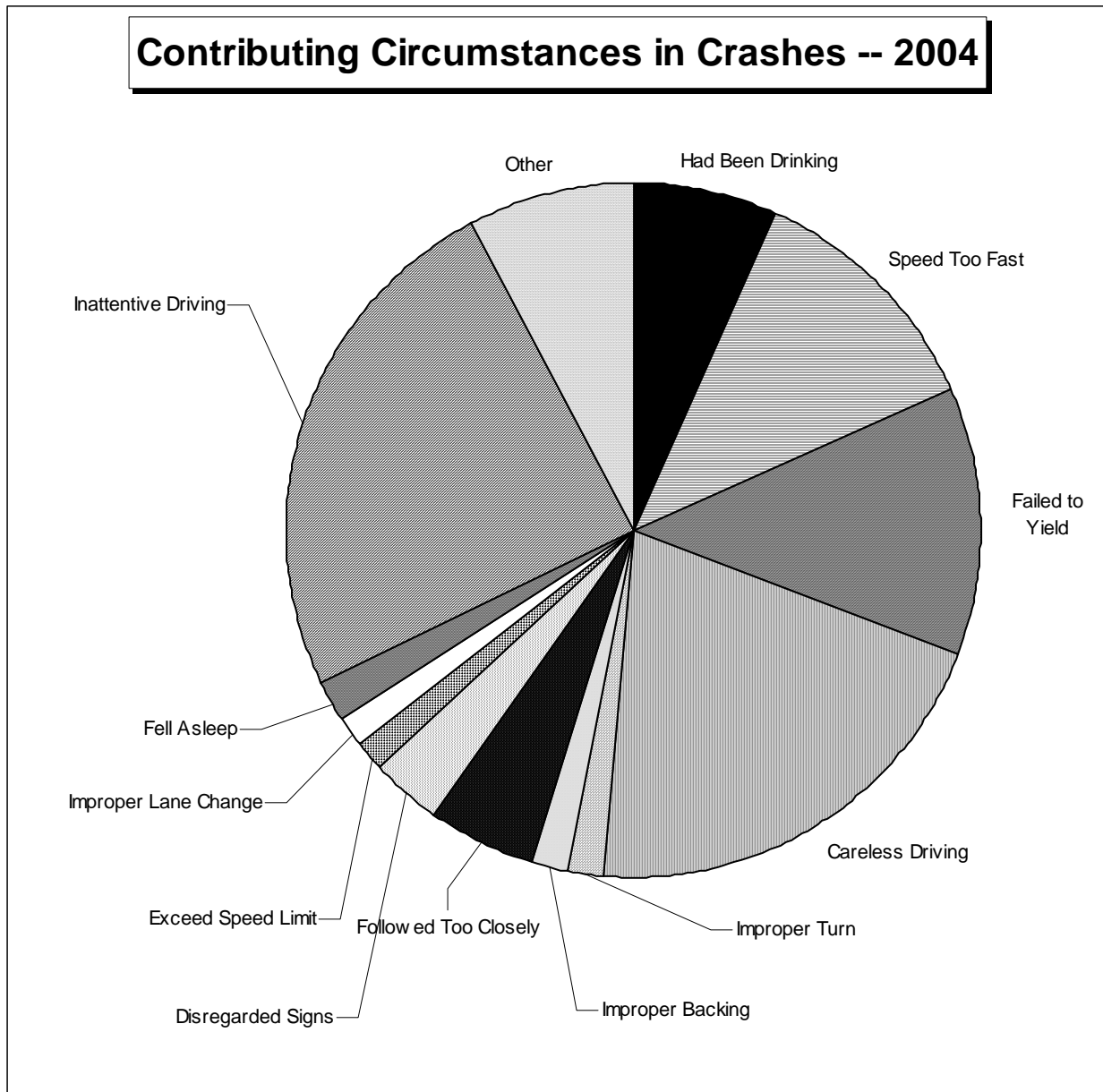
Table 38  
**Contributing Circumstances Involving Driver**

Year	Alcohol	Speed Too Fast	Failed to Yield	Careless Driving	Follow Too Closely	Improper Turn	Improper Backing	Total
1995	1,532	2,887	3,902	4,133	---	531	493	---
1996	1,948	6,146	4,480	3,924	1,328	893	797	19,516
1997	1,791	4,806	4,040	4,313	1,397	865	710	17,922
1998	1,816	4,462	3,687	4,645	1,284	753	718	17,365
1999	1,851	3,335	3,483	5,492	1,338	713	633	16,845
2000	1,818	4,396	3,627	5,928	1,341	742	629	18,481
2001	1,708	3,426	3,690	5,373	1,385	500	465	16,547
2002	1,922	4,517	3,883	5,890	1,517	503	459	18,691
2003	1,889	4,663	3,695	5,998	1,400	501	400	18,546
2004	1,908	3,419	3,630	5,965	1,468	517	456	17,363
Chg 1 Yr	+1.0%	-26.7%	-1.8%	-0.6%	+4.9%	+3.2%	+14.5%	-6.4%
Chg 5 Yr	+3.8%	-15.9%	-1.2%	+4.0%	+5.1%	-12.6%	-11.8%	-2.6%

Source: TIS – Montana Department of Transportation

The loss of a numerical speed limit in 1995 along with a new crash reporting form in 1996 affected the category of hazardous actions. Figure 20 on the following page shows a percentage breakout for driver's hazardous actions in crashes for 2004.

Figure 20



b. Driver's License Compliance:

The next table examines the license status of each driver at the time of involvement in an injury or fatality crash. Only the most common status codes are included in the table. The addition of a short crash reporting form, which doesn't capture status of license has complicated this table. Since short forms are used on some Property Damage Only crashes, this table excludes all property damage crashes and examines injury crashes only to assure data consistency over the ten year period.

<p>Table 39</p> <p><b>License Status for Drivers in Injury Crashes</b></p> <p>(Injury crashes only)</p>						
Year	Valid License	No License	Probationary	Expired	Suspended	Revoked
1995	10,044	---	57	142	152	132
1996	11,292	341	59	135	156	148
1997	10,787	360	46	160	219	122
1998	9,883	333	52	151	213	120
1999	9,984	320	51	155	289	150
2000	10,570	320	63	102	280	145
2001	8,908	299	49	75	239	119
2002	9,784	314	49	88	294	112
2003	9,263	296	40	78	304	114
2004	8,947	307	42	73	289	112
Chg 1 Yr	-3.4%	+3.7%	+5.0%	-6.4%	-4.9%	-1.8%
Chg 5 Yr	-7.8%	-0.9%	-16.7%	-26.7%	+2.8%	-12.5%

Source: TIS – Montana Department of Transportation

Drivers involved in crashes while driving with a suspended license have increased significantly in the last ten years. During 1995 there were 152 of these occurrences and this count reached 289 in 2004. Drivers with no license during a crash are decreasing slightly.

#### **4. Traffic Records**

Traffic safety data and specifically crash data are an important part of any highway safety program. Without timely and relevant data, a traffic safety program cannot operate efficiently. Countermeasures cannot be developed without the ability to determine where problem areas occur. NHTSA requires the Highway Safety Plan to be data driven, so good data systems are required.

The current crash system and reporting form were developed during 1994 and 1995. This system replaced Montana's Highway Information System (HIS) on January 1, 1996. The new system is part of the overall Transportation Information System (TIS) supported by the Montana Department of Transportation. Included with this new system is an on line road log, traffic counts, and a GIS database which contains a photo log of all on system roads in the state. The crash report form was modified slightly on January 1, 2001 and again during 2004. In addition a new short form was added during 2001. This form can be used for property damage only crashes but may have some undesirable effects on the data. There is the possibility of overuse of the form and also use in the incorrect circumstance. This will be examined over the next few years.

During 2004, a Traffic Records Assessment was conducted for Montana. This assessment report discusses the positives and negatives of traffic records concerning highway safety in the state. Many recommendations were suggested in this report. The most important recommendation is that Montana needs to formalize a two-tiered Traffic Records Coordinating Committee across multiple agencies and jurisdictions. This has been accomplished with the formation of both committees. Cambridge Systematics is writing a Traffic Records Strategic plan during FY 2005. Work began on this plan during February and should be completed during the last quarter of FY2005. Once this plan is in place, NHTSA funds may be made available to Montana for improving Traffic Records systems within the state.

The Department of Transportation is examining the possibility to allow entry of location codes by GPS. Then the department will transform those locations onto X-Y coordinates and attach the crashes to the road system.

A DUI tracking system or a citation/conviction tracking system would be advantageous to traffic safety within Montana. At present, a court tracking system has been deployed to most courts in Montana. The software is called Full Court. Information from the citation is entered into the database along with adjudication information. Currently the Department of Justice and the Office of Court Administration are in the early stages of mapping variables so that this data may be uploaded to the Driver History file.

The last part of a DUI tracking system would be to allow for entry of citation information at the law enforcement level. If this data could be uploaded to the appropriate court, then true tracking could exist.

The Department of Justice is currently examining their business practices related to Vehicle Registration, Driver Licensing and Driver Improvement. This project is requiring major changes in their data files and information exchange. They are in the middle of this process and the resulting improvements should greatly affect data availability, linking and exchange. These changes should give better driver histories resulting in quicker and more accurate action, and will provide better available data to law enforcement, judges, prosecutors and highway safety advocates.

Two key recommendations from the assessment were to link databases together when possible and to make data more readily available to users. Certainly, creating linkages between databases using common elements is an issue being examined. More data summaries should be placed on web sites for easy access by other agencies and the public.

## 5. Emergency Medical Services

Emergency Medical Services differs from many program areas that are related to Traffic Safety because there is no intention of affecting the number of crash occurrences. Theoretically, better EMS will reduce the number of fatalities and complications from severe injuries. Table 40 lists the total number of crashes involving either fatalities or incapacitating injuries by county. This provides a basis for approximating the need of EMS as related to traffic crashes in each county.

Table 40 <b>Severe Injury Crashes by County – 2004</b>			
County	Severe Crashes	County	Severe Crashes
Beaverhead	14	McCone	5
Big Horn	22	Meagher	5
Blaine	8	Mineral	19
Broadwater	16	Missoula	212
Carbon	32	Musselshell	0
Carter	1	Park	23
Cascade	68	Petroleum	8
Chouteau	11	Phillips	6
Custer	5	Pondera	11
Daniels	3	Powder River	5
Dawson	9	Powell	24
Deer Lodge	17	Prairie	2
Fallon	6	Ravalli	58
Fergus	19	Richland	13
Flathead	136	Roosevelt	12
Gallatin	60	Rosebud	17
Garfield	1	Sanders	26
Glacier	32	Sheridan	7
Golden Valley	1	Silver Bow	22
Granite	15	Stillwater	25
Hill	15	Sweet Grass	10
Jefferson	28	Teton	7
Judith Basin	6	Toole	6
Lake	54	Treasure	4
Lewis and Clark	58	Valley	9
Liberty	2	Wheatland	6
Lincoln	35	Wibaux	3
Madison	23	Yellowstone	128

Source: TIS – Montana Department of Transportation

The county with the most severe crashes in Montana was Missoula with 212. Flathead County was next with 136 severe crashes followed by Yellowstone County with 128. Following, these three counties, there is a significant drop in numbers to Cascade with 68, Gallatin with 60 and then Ravalli and Lewis & Clark with 58.

The EMS and Injury Prevention Section is moving forward in the development and/or acquisition and implementation of a new Trauma Records database and a new statewide Trip Reports database. The first system will allow for a comprehensive trauma database, which may be able to tie into CODES applications. This second system will allow the tracking of detailed information of many variables concerning ambulance runs including data related to treatment and procedures given to patients, quality control, response times and much more. The EMS & IP Section conducted an EMS assessment during June 2005. The results of this assessment should help them direct their efforts during the future.

Computers exist in most of the ambulance services in the state. The services use these computers for training. In addition, the computers will be used for entry of ambulance trip report data. A subset of this data will be transferred to the state EMS Bureau for statewide informational purposes.

## **6. Young Drivers and Senior Drivers**

This section examines the age of the drivers that are involved in traffic crashes. Crash rates per one thousand licensed drivers are calculated. This data provides additional information to allow for better decisions on targeting specific high-risk age groups. Table 41 contains this age related data.

Table 41 <b>Crashes by Age of Driver (2004 Crash Data)</b>					
Age	Licensed Drivers (2004)	Drivers in Crashes	Crashes per 1000 Licenses	Drivers in Fatal Crashes	Fatal Crashes per 1000 Licenses
Under 16	5,048	934	185	5	0.99
16	8,743	1,166	133	2	0.23
17	10,575	1,302	123	6	0.57
18	11,984	1,356	113	9	0.75
19	12,573	1,270	101	8	0.64
20	13,115	1,062	81	9	0.69
Under 21	62,038	7,090	114	39	0.63
21-24	48,595	3,633	75	30	0.62
25-29	59,924	3,125	52	25	0.42
30-39	109,599	4,980	45	40	0.36
40-49	144,479	5,631	39	55	0.38
50-59	133,668	4,254	32	44	0.33
60-69	81,943	2,291	28	25	0.31
70+	72,734	2,069	28	25	0.34

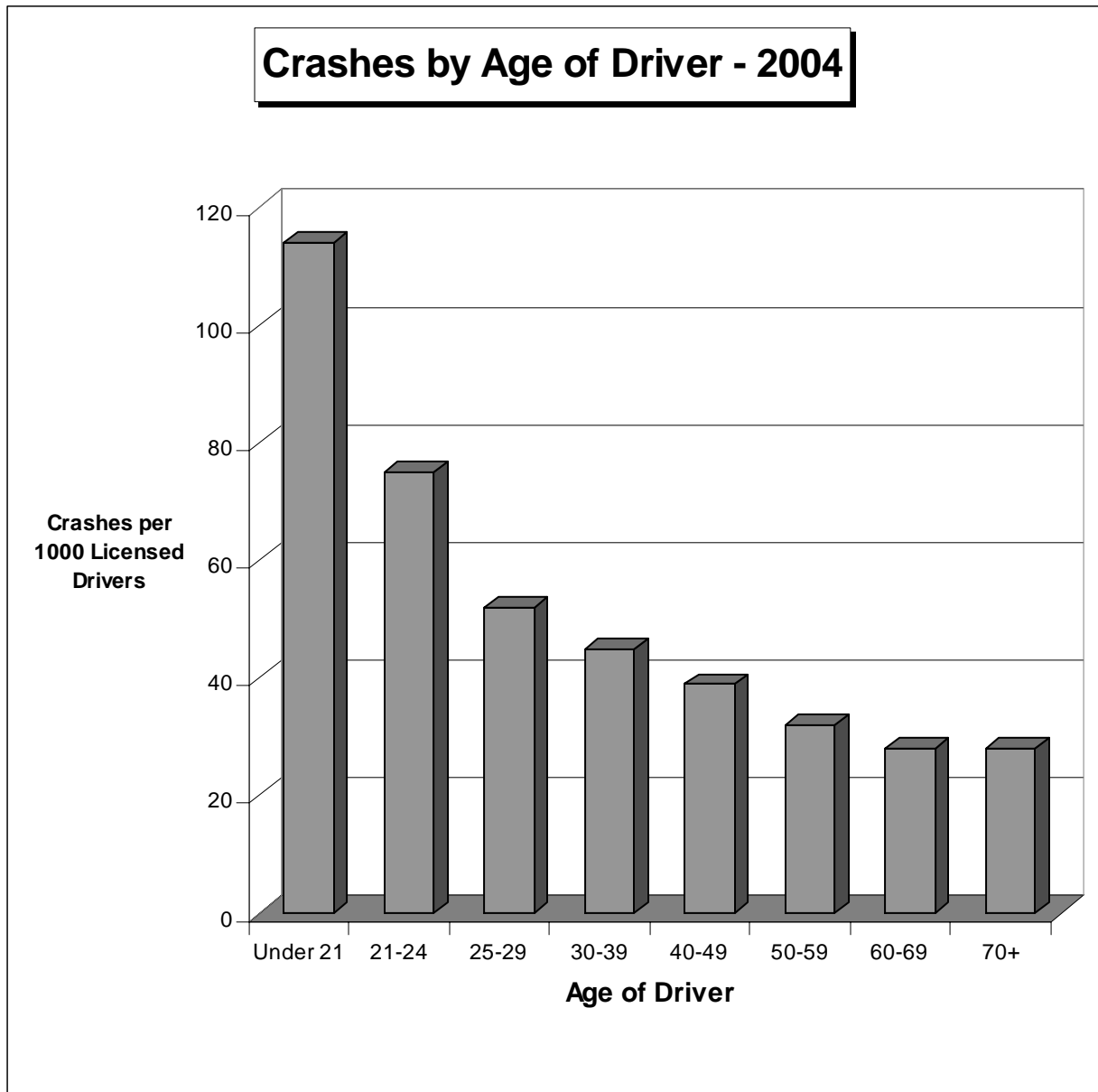
Source: TIS – Montana Department of Transportation  
Motor Vehicle Division – Department of Justice

Young drivers are over-represented in traffic crashes based upon the number of licensed drivers. Nationally the number of miles driven by teens is less than for drivers of all ages. In fact teens drive 35% fewer miles than average adults. If teen drivers in Montana are similar to the teens across America, then their rate of crashes per vehicle miles driven would be even more extreme than the rate per licensed driver shown above. Drivers between 15 and 20 years of age were involved in 114 crashes per thousand drivers during 2004. Every other age group over 20 years of age had a rate

of 75 or less crashes per thousand licensed drivers. Each higher age group had fewer crashes per licensed driver than the previous age group, with the exception of the over 70 group. The data suggests that inexperience and/or risk-taking are factors in crash risk for youth. Certainly the change for each year of age between 15 and 20 supports the supposition that experience is a strong factor. It is of interest to note that a 15 year-old driver is nearly 7 times more likely to be in a crash than a driver in their sixties.

Similarly, the fatal crash rate is lower for older drivers. Drivers under 21 were involved in 0.63 fatalities per thousand licensed drivers. This is a significant drop from 0.91 during 2003. All age groups above 25 were involved at a rate of 0.42 or less fatalities per thousand drivers. The drivers over 70 were involved in a higher rate of fatal crashes than three other age groups. Considering that they driver fewer vehicle miles than other age groups this risk is even greater on a per mile basis. The following chart shown in Figure 21 shows this change in crash incidence by age of driver.

Figure 21



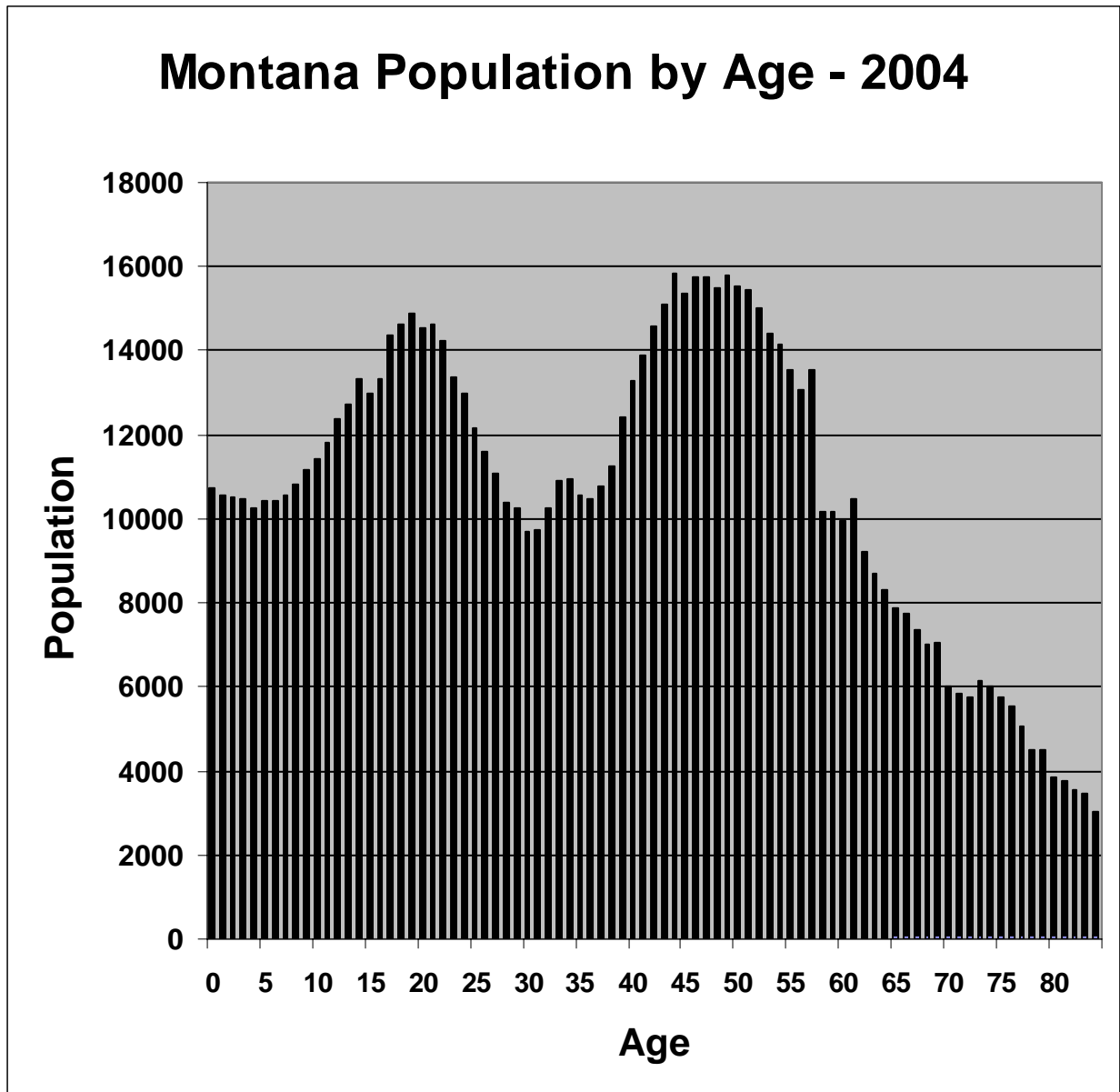
In order to envision the challenges before Montana's citizens in the traffic safety area, the population by age estimate for 2004 is next presented in Figure 22 on the following page. During 2004, the baby boom population in Montana seemed to span the age group from 41-57. There is a second boom in Montana from age 12-25. The variation in population for some ages is quite significant. It should be noted that there are more than 14,000 Montana citizens for each of the ages eighteen to twenty-three and forty-two to fifty-four; but there are less than 10,000 thirty and thirty-one year olds.

What does this mean to traffic safety? Over the next fifteen years there will be steady growth in the number of drivers over 60 years of age. This will become a significant concern of the traffic safety community as the number of older drivers increases. Currently, and over the next few years, we are in the midst of a large number of teen and young adult drivers. This is the highest risk group in traffic safety. So the number of elderly drivers and the number of drivers under 30 is increasing while the group of drivers between 30 and 55 will be decreasing.

Some of the gains made in Traffic Safety during the 1980's were related to demographics rather than actual gains. They were achieved in part because the drivers most likely to be in fatal crashes are between 15 and 30. There were less of these drivers during this decade. For the opposite reason, we have made minimal gains over the last ten years. There are now more drivers in this age group.

These population figures are being noted because of the special challenges that they present to traffic safety. It will be doubly difficult in the near future to show improvement in traffic safety while the number of drivers in the high-risk age groups increases. Some rate improvements may be realized in traffic safety, but it will be much more difficult to decrease the number of incidents relating to these age groups.

Figure 22





## 7. Motorcycle Involvement in Crashes

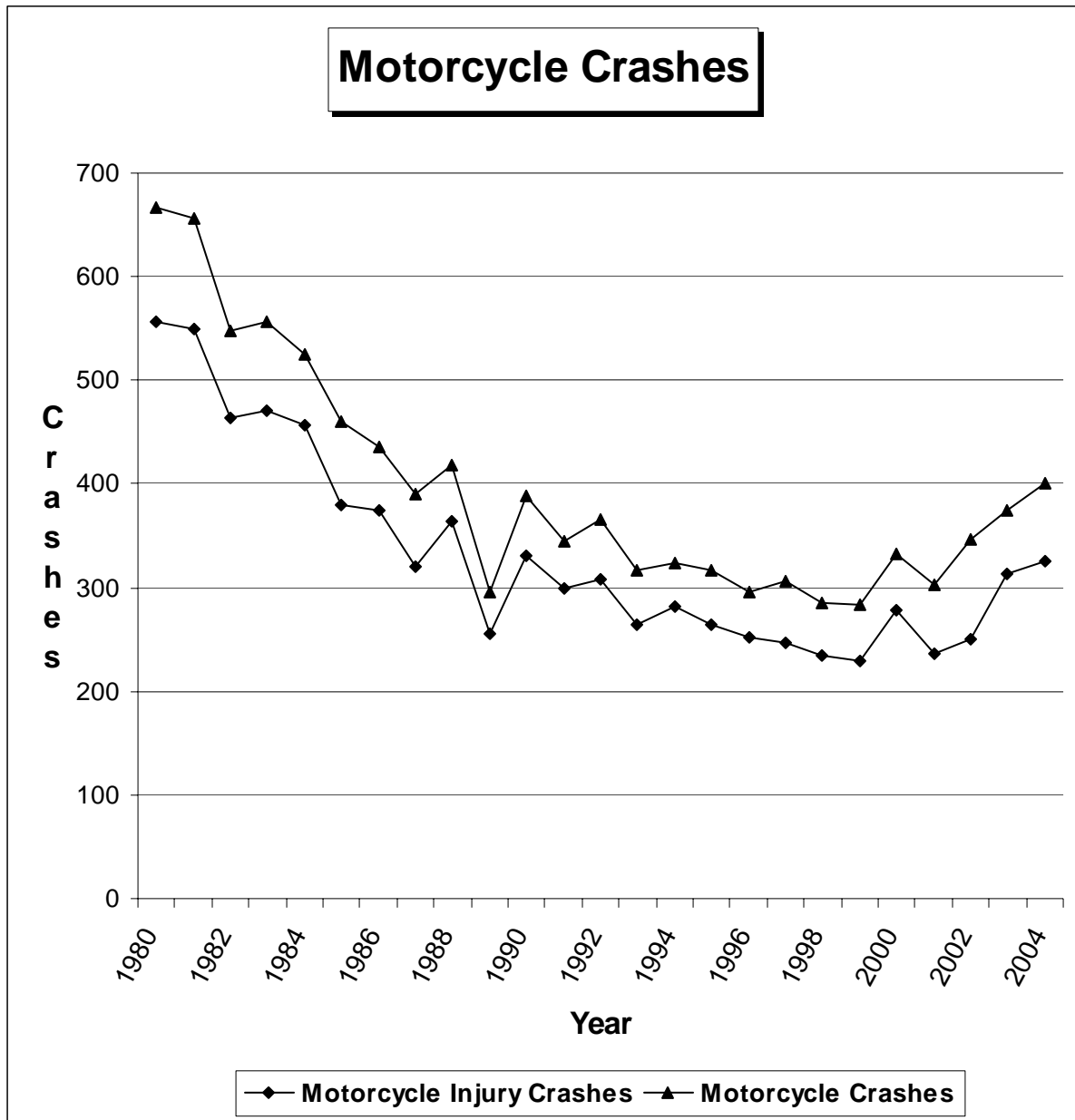
Motorcyclists in traffic crashes comprise a relatively small percentage of all persons involved in crashes. However, these persons are at much greater risk when involved in a crash. Because of this, motorcycles account for a significant amount of fatalities and serious injuries. Table 42 examines the number of motorcycle registrations, crashes, fatal crashes and injury crashes over the past ten years.

Table 42 Motorcycle Crashes							
Year	Motorcycle Registrations	Crashes	Percent of All Crashes	Fatal Crashes	Percent of all Fatal Crashes	Injury Crashes	Percent of all Injury Crashes
1995	18,225	317	1.5%	14	7.5%	265	3.9%
1996	17,935	296	1.2%	8	4.5%	252	3.6%
1997	17,978	307	1.4%	18	8.1%	246	3.5%
1998	NA	286	1.3%	13	6.3%	235	3.5%
1999	NA	284	1.3%	15	7.7%	229	3.4%
2000	NA	332	1.5%	14	7.0%	279	4.0%
2001	25,618	302	1.4%	11	5.5%	236	3.8%
2002	28,111	347	1.5%	24	10.3%	251	3.9%
2003	34,433	375	1.6%	12	4.6%	314	5.0%
2004	42,967	400	1.8%	20	9.6%	325	5.4%
Chg 1 Year	+24.8%	+6.7%	+12.5%	+66.7%	+10.9%	+3.5%	+8.0%
Chg 5 Year	---	+22.0%	+23.3%	+31.6%	+36.8%	+24.1%	+34.3%

Source: TIS – Montana Department of Transportation

It would be easy to say that there is an increased danger that motorcyclists would crash during the last five years. This is not actually true! Motorcycle registrations have been increasing significantly over the last few years and are more than double the number occurring in 1997. These registrations increased by 52% in just the past two years. Motorcycle injury crashes increased by 41% since 1999. There were 378 injuries resulting from the 325 injury crashes. Although, the numbers of crashes, injuries and fatalities are up, the rates of these numbers per registered vehicle are actually down. Figure 23 on the following page shows the trend in motorcycle crashes and injuries.

Figure 23



Helmet usage for drivers and passengers in motorcycle crashes is displayed in the following table. Usage was quite low for most ages, but increased significantly over 2003 levels. Those over 65 wore helmets much more often than the other age groups—during 2004 their usage was 68%. For most other age groups usage was between 35 and 50 percent.

<p>Table 43  <b>Motorcycle Helmet Use by Age</b>  (2004 Crash Data)</p>				
Age	Driver		Passenger	
	Used	Not Used	Used	Not Used
14 & Under	5	5	5	1
15-17	6	4	1	3
18-19	14	16	3	2
20-24	22	43	1	8
25-34	26	40	0	4
35-64	88	107	23	16
65 & Over	11	5	0	0
Not Stated	1	7	0	0
Total	173	227	33	34

Source: TIS - Montana Department of Transportation

The observational helmet use survey estimates a 69 percent usage rate for 2005. Usage on interstates and primary routes were relatively high at 78% and 81% respectively. City usage was much lower at 46% while secondary and county roads were 64%. The overall statewide usage rate is derived from only 237 observations making the precision of the estimate less than desirable. This small sample size means that there is 95 percent confidence that the estimate is within 7 percentage points of the actual usage.

Differences between drivers from crashes involving a motorcycle and drivers from all crashes were investigated. When looking at the data field, “Drivers by sobriety”, the driver was coded as alcohol and/or drugs present for 6.0 percent of all drivers. The same field was coded in 11.3 percent of motorcycle-involved crashes.

For the “Drivers by License Restriction Code”, 1.8 percent of drivers in all crashes did not comply with restrictions, while 9.1% of drivers in motorcycle crashes did not comply. Pertaining to the “Drivers By License Status” field, 1.6 percent of drivers in all crashes

had no license while, 2.0 percent of drivers involved in motorcycle crashes had no license. Suspended licenses accounted for 1.4% of drivers in all crashes and 3.6% in motorcycle crashes.

Of the motorcyclists who are in traffic crashes, 36.8% receive an incapacitating injury or are killed. In crashes of all vehicle types only 3.7% of the occupants receive this level of injury. The chance of severe injury is nearly ten times higher when riding motorcycles.

In the next table, we examine the age of motorcycle fatal crash victims. Most fatalities in past decades occurred in the 20-34 year age group. However, in recent years there has been a shift occurring with most fatalities coming from over 35 years of age. A few fatalities are even occurring in the 65 and over age group, which prior to 1995 was a rarity. Fewer fatalities are occurring to motorcycle riders under age 25.

Table 44 Motorcycle Fatalities by Age								
Year	Age Groups							
	0-14	15-17	18-19	20-24	25-34	35-64	65+	Total
1995	0	0	1	1	4	10	0	16
1996	0	0	2	2	1	4	0	9
1997	0	1	2	2	4	11	0	20
1998	0	0	1	0	3	8	2	14
1999	0	0	0	2	3	10	0	15
2000	0	0	0	3	1	8	1	13
2001	0	0	0	2	2	6	2	12
2002	0	1	0	3	3	14	3	24
2003	0	0	0	1	2	7	2	12
2004	0	2	0	2	1	10	5	20
10 Yr Total	0	4	6	18	24	88	15	155

Source: TIS – Montana Department of Transportation

Motorcyclist deaths continue to be a concern in the state. Severe injuries have a large impact because of the medical costs and continuing care costs to the public and private sectors.

## 8. Collisions with Pedestrians

A general summary of pedestrian collisions is displayed below in Table 45. Pedestrian crashes account for 4.8% of all fatal crashes, but less than one percent of all crashes.

Table 45 <b>Motor Vehicle Collisions with Pedestrians</b>							
Year	Crashes	% of All Crashes	Fatal Crashes	% of all Fatal Crashes	Fatalities	Injury Crashes	Injuries
1995	185	0.9%	12	6.5%	12	171	196
1996	180	0.7%	13	7.3%	13	149	178
1997	167	0.7%	9	4.0%	9	136	146
1998	166	0.8%	13	6.3%	13	135	148
1999	153	0.7%	7	3.1%	7	128	139
2000	161	0.7%	11	5.5%	11	139	148
2001	167	0.8%	9	4.5%	9	141	163
2002	174	0.7%	14	6.0%	14	152	164
2003	163	0.7%	10	4.2%	10	138	158
2004	156	0.7%	10	4.8%	10	114	124
Chg 1 Year	-4.3%	---	---	+14.3%	---	-17.4%	-21.5%
Chg 5 Year	-4.6%	-2.8%	-2.0%	+3.0%	-2.0%	-18.3%	-19.7%

Source: TIS – Montana Department of Transportation

Pedestrian crashes, which occur outside of city limits, are less common than urban crashes. However, rural crashes tend to have a higher percentage of fatal and severe injury crashes. During the last ten years, less than 23% of pedestrian crashes were rural. At the same time, more than 46% of the fatal crashes were rural. About five fatalities and forty injuries occur during an average year on rural roads.

<p>Table 46</p> <p><b>Rural Motor Vehicle Collisions with Pedestrians</b></p>							
Year	Rural Crashes	% of All Pedest. Crashes	Rural Fatal Crashes	% of all Pedest.. Fatal Crashes	Rural Fatalities	Rural Injury Crashes	Rural Injuries
1995	34	18.4%	2	16.7%	2	32	37
1996	50	27.8%	8	61.5%	8	40	55
1997	50	29.9%	6	66.7%	6	42	49
1998	42	25.3%	6	46.2%	6	35	40
1999	26	17.0%	5	71.4%	5	20	24
2000	40	24.8%	7	63.6%	7	32	54
2001	29	17.4%	4	44.4%	4	23	36
2002	41	23.6%	5	35.7%	5	35	44
2003	33	20.2%	3	30.0%	3	30	45
2004	33	21.2%	4	40.0%	4	19	19
Ave	37.8	22.6%	5.0	46.3%	5.0	30.8	40.3

Source: TIS – Montana Department of Transportation

Table 47 lists the pedestrian injuries plus fatalities by age. Casualties tend to be spread among all ages, but there is some concentration of injuries from ages 5 to 24. Injuries from pedestrians makes up a small percentage of total injuries in the state, but the number of pedestrian fatalities still makes up a significant amount of the total number of fatalities. Injuries seem to be on the increase for pedestrians from 35 to 64 years of age.

Table 47 Pedestrian Fatalities and Injuries by Age									
Year	0-4	5-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1995	11	58	37	17	18	17	7	23	208
1996	3	38	30	28	23	15	7	27	191
1997	8	32	33	11	20	13	13	19	155
1998	2	28	38	13	24	17	10	20	161
1999	4	28	17	7	11	14	8	34	146
2000	5	41	27	18	20	20	11	17	159
2001	4	37	32	15	21	18	17	15	172
2002	4	37	47	21	18	26	11	14	178
2003	1	23	34	19	27	21	14	15	168
2004	3	29	16	15	19	29	11	12	134
10 Yr Total	45	351	311	164	201	190	109	196	1672

Note: The totals for each year may not equal the total because of a small amount of cases where no age was noted on the crash report.

Source: TIS – Montana Department of Transportation

Table 48 includes a summary of actions of the pedestrian during and before the time of the collision. Coding changes to the categories on the new crash reporting form beginning in 1996 may affect the numbers at that time in some categories. The action, “not crossing the roadway at a crosswalk or intersection”, increased over the last two years.

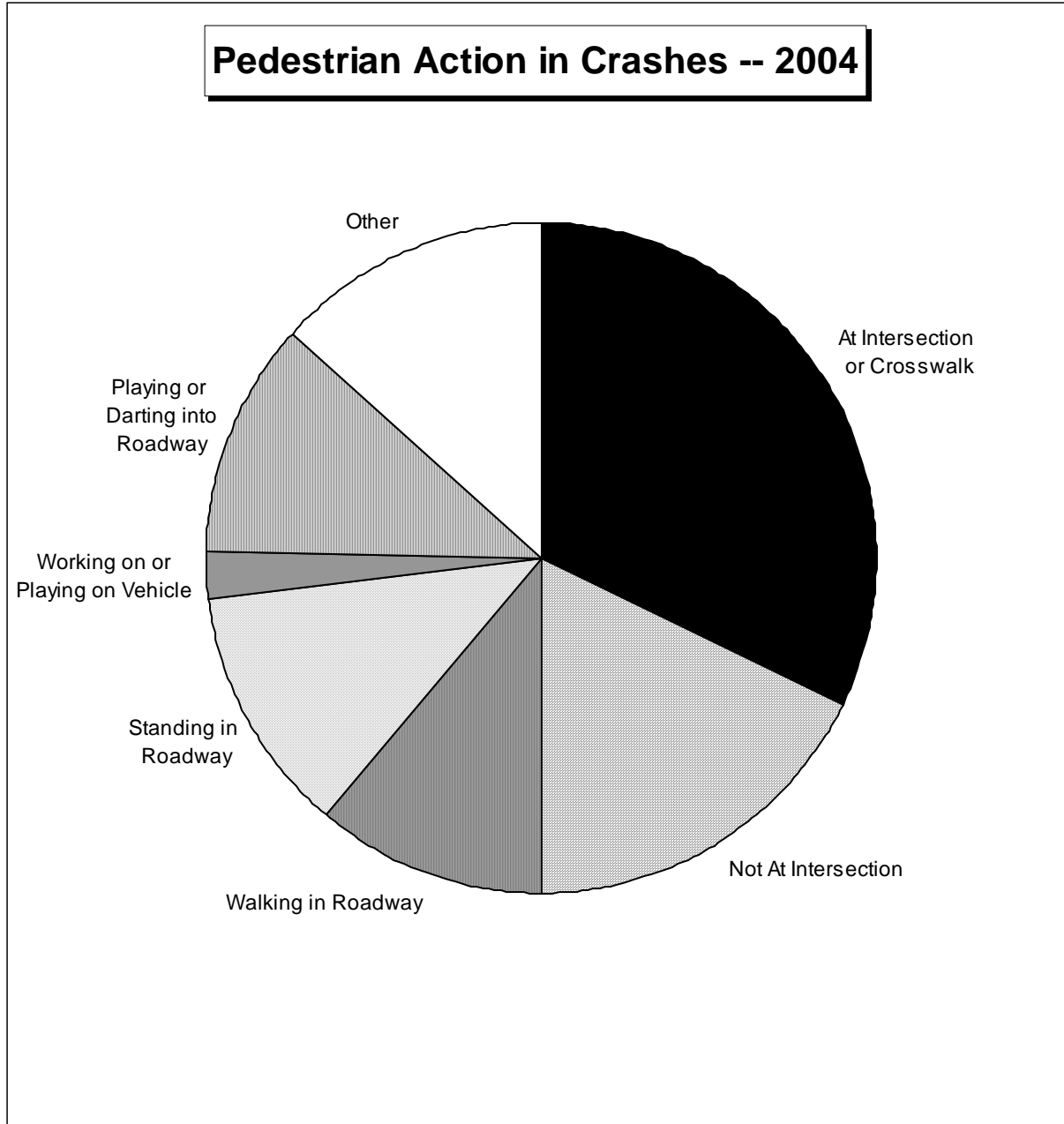
Table 48 Pedestrian Injuries by Action						
Year	At Intersection or Crosswalk	Not at Intersection or Crosswalk	Walking or Standing In Road	Working on or Pushing Vehicle	Playing or darting into Roadway	Other
1995	93	42	19	5	9	24
1996	47	32	24	6	25	37
1997	35	24	29	5	24	32
1998	56	18	28	7	19	25
1999	60	12	13	3	26	23
2000	57	17	20	6	32	26
2001	58	22	24	8	27	18
2002	51	30	27	4	27	38
2003	59	23	34	2	17	21
2004	43	24	26	5	15	23
Chg 1 Yr	-27.1%	+4.3%	-23.5%	+150%	-11.8%	+9.5%
Chg 5 Yr	-24.6%	+15.4%	+10.6%	+8.7%	-41.9%	-8.7%

Source: TIS – Montana Department of Transportation

\* The data from 1996-2004 does not compare well with data before 1996 because of changes in crash reporting form

Figure 24 on the following page shows a pie chart for all pedestrian collisions by action during 2004.

Figure 24





## 9. Collisions with Bicyclists

Bicycle crashes, with motor vehicles, was lower than any time since 1993. The large number of fatal crashes (8) involving a bicyclist in 2000 appears to have been a very unusual statistical aberration. Five bicycle related fatalities occurred during the last four years. The summary data is presented in Table 49.

Table 49 <b>Motor Vehicle Collisions with Bicyclists</b>					
Year	Crashes	Percent of All Crashes	Fatalities	Percent of all Fatalities	Injuries
1995	197	0.96%	1	0.47%	203
1996	180	0.74%	2	1.13%	158
1997	224	0.99%	1	0.38%	202
1998	198	0.90%	1	0.42%	183
1999	178	0.84%	3	1.36%	183
2000	200	0.90%	8	3.40%	177
2001	177	0.81%	0	0.00%	163
2002	172	0.73%	1	0.37%	158
2003	170	0.73%	2	0.76%	153
2004	167	0.77%	2	0.87%	149
Chg 1 Year	-1.8%	+5.5%	---	+14.5%	-2.6%
Chg 5 Year	-6.9%	-4.0%	-28.6%	-26.1%	-10.7%

Source: TIS – Montana Department of Transportation

Table 50 presents bicyclist casualties (fatalities + injuries) by age. The injuries during 2004 were less than any previous year. Bicyclist injuries tend to be concentrated in the ages from 5 to 19. The 10-14 year old age group remains the highest casualty group, but seems to be declining. In recent years, the age group from zero to nine has decreased in number of injuries, while the age group ranging from 35 to 54 has increased in casualties.

Table 50 Bicyclist Casualties by Age								
Year	0-9	10-14	15-19	20-24	25-34	35-54	55+	Total
1995	41	67	30	19	20	23	4	204
1996	29	48	25	17	17	21	2	160
1997	38	62	33	19	19	24	6	202
1998	28	50	14	18	28	33	12	184
1999	28	36	23	14	13	26	8	167
2000	30	46	27	18	23	30	11	185
2001	28	43	29	13	20	22	8	163
2002	25	32	16	14	21	44	7	159
2003	8	45	18	28	14	33	9	155
2004	24	33	20	15	22	24	12	150
10 Yr Ave	27.9	46.2	23.5	17.5	19.7	28.0	7.9	172.9

Note: The totals for each year may not equal the sum of the age groups because of a small amount of cases where no age was noted on the accident report.

Source: TIS – Montana Department of Transportation

## 10. Truck Involvement In Crashes

This section examines Montana crashes involving trucks. The table that follows contains a ten-year history of truck-involved crashes within the state. There is sometimes confusion with data from other databases, which contain “commercial” truck information. Those databases will not coincide completely with the data from the Highway Patrol Crash database. The definitions are not identical. The commercial truck definition excludes some trucks that will be reported on the state crash reporting form.

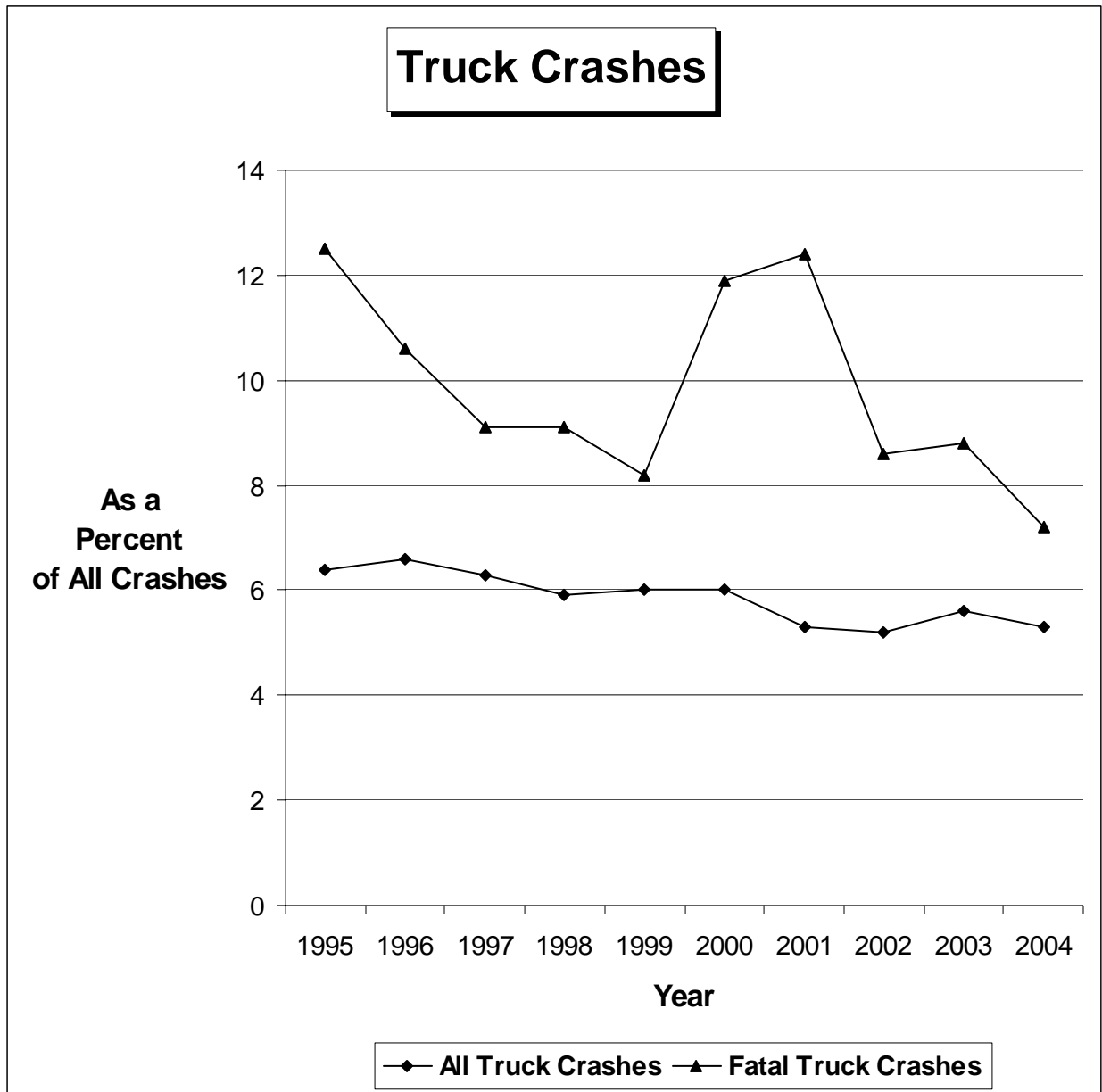
The number of truck crashes reached a high in 1996 and has decreased by nearly 30% over the eight years since then. The number of fatal crashes involving trucks was lower than any year since 1993 when there were 13 fatal crashes.

Table 51 Number of Crashes Involving Trucks				
Year	Crashes		Fatal Crashes	
	Number	Percent of all Crashes	Number	Percent of all Fatal Crashes
1995	1314	6.4%	27	12.5%
1996	1646	6.6%	21	10.6%
1997	1426	6.3%	24	9.1%
1998	1310	5.9%	19	9.1%
1999	1262	6.0%	16	8.2%
2000	1346	6.0%	24	11.9%
2001	1159	5.3%	25	12.4%
2002	1228	5.2%	20	8.6%
2003	1288	5.6%	21	8.8%
2004	1163	5.3%	15	7.2%
Chg 1 Year	-9.7%	-5.4%	-28.6%	-18.2%
Chg 5 Year	-7.4%	-5.7%	-29.2%	-27.9%

Source: TIS - Montana Department of Transportation

Figure 25 on the following page shows the number of truck crashes as a percentage of all motor vehicle crashes and fatal truck crashes as a percentage of all motor vehicle fatal crashes.

Figure 25



This table presents the type of trailer for trucks. All configuration types had a high number of crashes during 1996, which were likely caused by abnormally icy roads. These counts include trucks and truck/tractor combinations. They also include trucks, which are towing other types of trailers, which could include boat trailers, house trailers and utility trailers.

Table 52 Truck Crashes by Trailer Type								
	Crashes				Fatal Crashes			
Year	No Trailer*	Single Trailer	Double Trailer	Triple Trailer	No Trailer	Single Trailer	Double Trailer	Triple Trailer
1995	462	734	117	1	8	13	6	0
1996	467	1014	163	2	7	13	1	0
1997	424	893	106	3	3	18	3	0
1998	393	785	131	1	5	12	2	0
1999	336	800	125	1	5	8	3	0
2000	328	905	111	2	5	19	0	0
2001	335	722	102	0	2	20	3	0
2002	340	801	84	3	6	12	2	0
2003	470	712	100	6	8	13	2	0
2004	461	634	103	2	6	9	1	0
Chg 1 Yr	-1.9%	-11.0%	+3.0%	-66.7%	-25.0%	-30.8%	-50.0%	---
Chg 5 Yr	+27.4%	-19.5%	-1.3%	-16.7%	+15.4%	-37.5%	-50.0%	---

Source: TIS – Montana Department of Transportation

\* Trucks with no trailer would include single unit vehicles. They could also include Tractor-Trucks that currently are not pulling a trailer.



## 11. Other Issues and Information

### a. **Buses and Unusual Vehicle Involvement in Crashes**

This section displays data for unusual vehicles such as buses, ambulances, farm machinery and fire trucks. Table 53 contains data on the number of these unusual vehicles involved in crashes for a ten-year period.

Table 53 Unusual Vehicle Types in Crashes						
Year	School Bus	Bus	Ambulance	Farm Machinery	Fire Truck	Snow-mobile
1995	47	57	9	19	4	9
1996	71	91	11	33	11	15
1997	73	71	14	32	12	14
1998	48	58	11	32	15	13
1999	63	60	9	16	8	12
2000	59	67	10	23	11	5
2001	65	69	8	15	12	6
2002	83	76	13	16	5	4
2003	66	63	11	18	10	3
2004	65	65	13	18	7	1
Chg 1 Yr	-1.5%	+3.2%	+18.2%	---	-30.0%	-66.7%
Chg 5 Yr	-3.3%	-3.0%	+27.5%	+2.3%	-23.9%	-83.3%

Source: TIS – Montana Department of Transportation

Snowmobile and Fire Truck crash numbers were well below the five-year average. Snowmobiles certainly seem to be trending much lower over the long term. Ambulance crash numbers were higher than the five-year average.



## b. Collisions with Animals or Avoidance

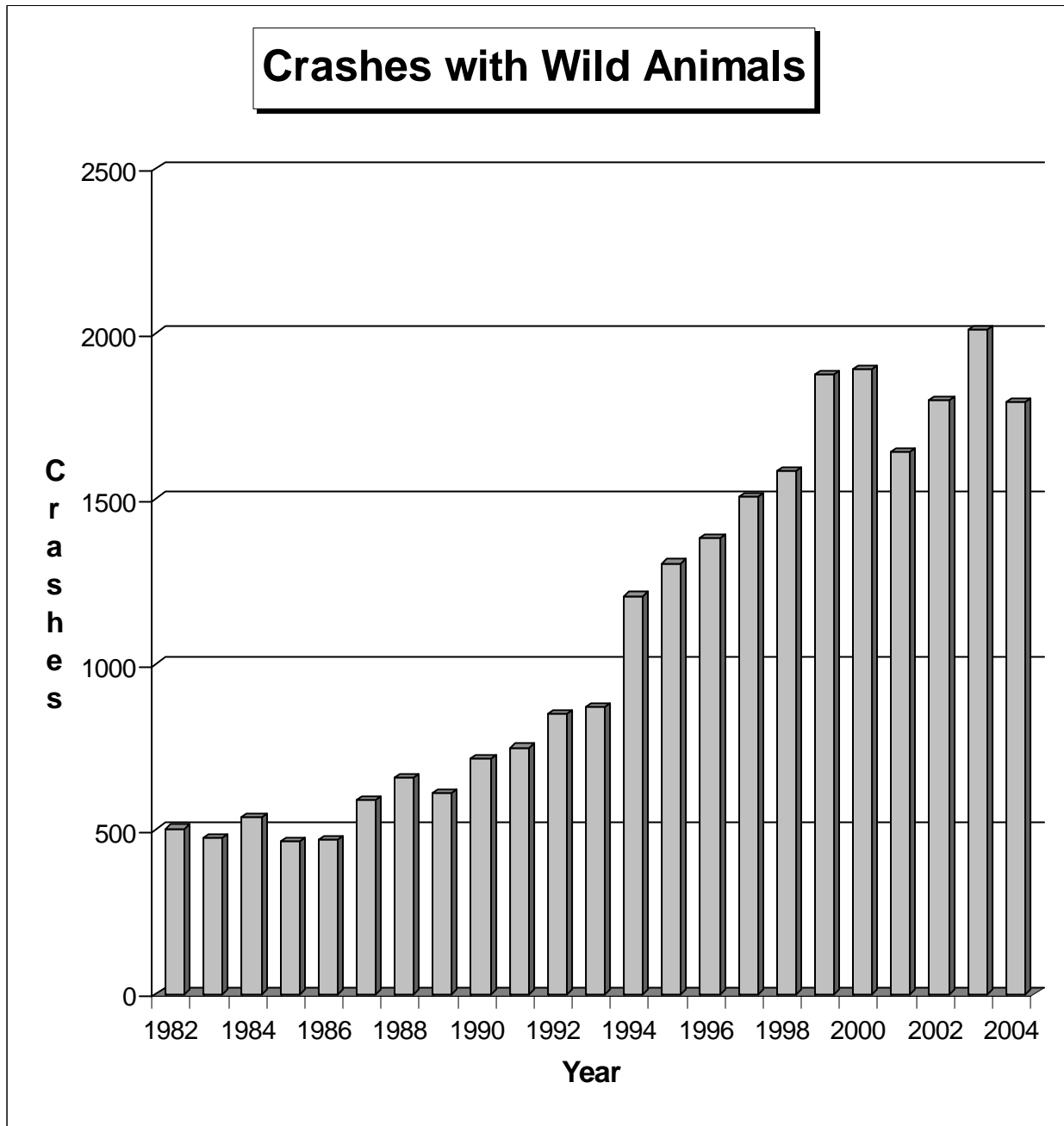
During the seventeen-year period from 1984 to 2003, the number of reported crashes involving wild animals increased from 468 to 2012. This number declined somewhat in 2004. The key word in the first sentence is 'reported', since many animal crashes are not reported. The long-term trend is shown on the following page in Figure 26. The number of crashes involving domestic animals has shown no trend over the years.

Table 54 Crashes Involving Animals				
Year	Crashes With Wild Animals	Fatal Crashes With Wild Animals	Crashes With Domestic Animals	Fatal Crashes With Domestic Animals
1995	1,305	5	287	1
1996	1,381	2	250	0
1997	1,506	3	241	3
1998	1,585	0	262	2
1999	1,875	0	298	2
2000	1,891	1	237	1
2001	1,643	3	201	1
2002	1,796	3	239	3
2003	2,012	3	234	1
2004	1,794	2	233	4
Chg 1 Year	-10.8%	-33.3%	-0.4%	+300%
Chg 5 Year	-2.7%	---	-3.6%	+150%

Source: TIS – Montana Department of Transportation

The Department of Transportation keeps a database, which accounts for animals that are picked up off the roadways by the Maintenance Division. The assumption that these carcasses were the result of collision with motor vehicles would seem valid. This count of carcasses should provide us with another estimate of the number of animal crashes. These numbers are from 3½ to four times higher than reported crashes. This ratio points toward the conclusion that no more than 25 to 30 percent of collisions with animals are being reported on crash reports.

Figure 26



### c. Railroad Crossing Safety

Motor vehicle collisions with trains are a relatively rare event, but the severity of such collisions tends to be very high. Table 55 presents a history of these collisions on public roadways in Montana for rural roads and for all roadways. Crashes in rural areas may be declining.

Table 55 Collisions with Trains						
Year	Rural			Total		
	Crashes	Fatal Crashes	Injury Crashes	Crashes	Fatal Crashes	Injury Crashes
1995	11	2	4	16	3	5
1996	24	3	10	27	3	11
1997	20	0	11	28	0	16
1998	16	2	6	24	2	11
1999	11	1	4	12	1	4
2000	19	1	6	22	1	6
2001	7	0	2	9	0	2
2002	9	1	3	20	2	6
2003	2	0	0	19	3	3
2004	10	0	4	15	0	5
Chg 1 Yr	+400%	---	---	-21.2%	-100%	+66.7%
Chg 5 Yr	+4.2%	-100%	+33.3%	-8.5%	-100%	+19.0%

Source: TIS – Montana Department of Transportation



## E. COUNTY RANKING

The following section places a ranking on the 56 counties in Montana. The ranking helps to determine funding level for safety programs. The first three categories are indices of traffic safety problems, while the last two indicate levels of local enforcement in two leading traffic safety areas.

Rank	County	Severe Crash Rank	Alcohol Cr+inj+F Rank	Ped+Bike +Mcycle Rank	DUI Conv Rank	Restraint Conv Rank	Sum of Ranks
1	Missoula	1	2	2	3	1	9
2	Yellowstone	2	1	1	2	6	12
3	Cascade	4	4	3	4	2	17
4	Flathead	2	3	4	6	4	19
5	Gallatin	5	5	6	2	8	26
6	Lewis and Clark	6	7	5	5	5	28
7	Ravalli	6	9	7	8	11	41
8	Lake	8	6	8	7	14	43
9	Silver Bow	18	15	9	10	3	55
10	Lincoln	9	14	10	12	18	63
11	Park	16	10	12	13	15	66
12	Hill	25	11	16	9	6	67
13	Glacier	10	8	11	20	20	69
14	Jefferson	12	12	12	17	19	72
15	Carbon	10	17	16	17	16	76
16	Stillwater	14	12	16	32	21	95
17	Sanders	13	21	16	22	28	100
18	Big Horn	18	18	22	11	34	103
19	Dawson	33	23	26	15	12	109
20	Madison	16	22	14	28	30	110
21	Fergus	20	24	16	23	30	113
22	Richland	28	26	30	24	10	118
23	Beaverhead	27	30	22	27	13	119
23	Custer	44	34	16	16	9	119
25	Roosevelt	29	16	14	39	26	124
26	Broadwater	24	34	30	14	28	130
27	Valley	33	20	30	25	23	131
28	Deer Lodge	22	27	22	21	40	132
29	Powell	15	27	30	29	34	135

Table 56 (continued)  
**County Ranking for Traffic Safety Programs**

Rank	County	Severe Crash Rank	Alcohol Cr+Inj+F Rank	Ped+Bike +Mcycle Rank	DUI Conv. Rank	Restraint Conv. Rank	Sum of Ranks
30	Rosebud	22	19	38	19	40	138
31	Mineral	20	37	26	29	40	152
32	Granite	25	25	30	38	40	158
33	Pondera	30	31	30	34	34	159
34	Blaine	35	36	38	25	30	164
34	Sweet Grass	32	40	38	31	23	164
36	Chouteau	30	27	38	39	34	168
36	Teton	37	32	22	37	40	168
38	Phillips	39	32	38	42	30	181
39	Toole	39	40	26	41	40	186
40	Fallon	39	47	30	45	26	187
41	Sheridan	37	38	38	35	40	188
42	Daniels	49	44	38	49	17	197
43	Meagher	44	42	30	44	40	200
43	Musselshell	56	39	50	32	23	200
43	Wheatland	39	47	38	36	40	200
46	Treasure	48	45	50	45	21	209
47	Powder River	44	49	38	45	34	210
48	McCone	44	43	38	51	40	216
49	Judith Basin	39	49	38	52	40	218
50	Petroleum	35	54	38	52	40	219
51	Carter	53	54	26	54	40	227
52	Prairie	51	49	50	42	40	232
53	Garfield	53	53	50	45	34	235
54	Wibaux	49	49	50	54	40	242
55	Liberty	51	55	50	49	40	245
56	Golden Valley	53	56	50	54	40	253

Source: TIS – Montana Department of Transportation

The five rankings are summed and then those totals are ordered. This table can be used as a very general ordering for traffic safety problems and solutions by county.

Dispersal of traffic safety monies may be distributed somewhat according to this table. Some counties or cities within counties will have special safety problems that are not represented by the above table and these instances will at times be taken into account. Many counties and cities will not have sufficient resources to manage an attack on their safety problems. Sometimes, several counties or cities may work together on certain issues.

Cost benefit is a factor when aiding counties. If a large benefit can be gained with a small amount of money, this could override aiding a project in a higher priority county. There is a limited amount of funding and sometimes this funding is earmarked to certain areas. This and other factors may also override priorities.

## **Conclusion**

This Problem Identification for FY 2006 explores many traffic safety issues in Montana. It is a compilation, which contains a large amount of varied data. There is much statistical “noise” in the various data, since there are so many variables that affect crashes including driver behavior, vehicles, roads, weather, laws and even something as simple as a change to a reporting form. It is difficult to reach significance because of these many factors along with the relatively small number of crashes and fatal crashes in the state.

This paper should be used as a guide when looking at the traffic safety problem or when attempting to find solutions for Montana traffic safety. Often it is safer to look at long-term trends, rather than a one-year increase or decrease which may have occurred from something as simple as an unusual winter. Winters with icy road conditions usually increase the number of property damage crashes while open winters with few icy road conditions usually increase fatal crashes. Perhaps a particular traffic safety intervention had no impact at all, but some other variable created the perceived result. Care should always be given that you don’t make assumptions for the cause of certain situations without looking at all possibilities. When in doubt one should error on the side of caution.

Questions or comments on this study should be directed to the State Highway Traffic Safety Office at the Montana Department of Transportation. For additional information call the office at (406) 444-3298.